MAILED
4-8-11 JH

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

April 7, 2011

Mr. Todd Kuxhaus
GREAT WEST ENGINEERING
PO Box 4817
Helena, MT 59604

RE: CLOSED CITY OF HELENA LANDFILL
POST-CLOSURE PLAN ADDENDUM - APPROVAL

Dear Todd,

The Solid Waste Program (SWP) has reviewed your request to amend the Post-Closure Plan for the above noted facility. Specifically, you requested approval to relocate the Freeride Park due to site limitations. The request is approved, but conditioned upon the requirement to obtain approval from the SWP in advance of any excavation activities within these freeride areas.

Thank you for your patience. Please do not hesitate to contact me with any questions, comments, or concerns.

Sincerely,

Mary Louise Hendrickson

Mary Louise Hendrickson
Solid Waste Program – Licensing
Phone: 406-444-1808; Fax: 406-444-1374
Email: mhendrickson@mt.gov

File: Lic#90/Class II Landfill/City of Helena/Post Closure
Path: G:\WUT\SWS\closure\helena\CentennialPark-FreerideParkLocation.docx

INDEXED

Stepp, Tim

From: Stepp, Tim
Sent: Wednesday, October 13, 2010 2:05 PM
To: 'Todd Kuxhaus'; Hendrickson, Mary
Cc: ateegarden@ci.helena.mt.us; Gery Carpenter; Nathan Steiner
Subject: RE: Centennial Park - Encountered Waste Notification
Attachments: image002.png; image001.png

Todd,

Thanks for the notification.
The deviation for installation in those areas is approved.
Please include the deviation info in the QA/QC report.

Tim

TIM STEPP
Environmental Engineer - Solid Waste Program
Waste & Underground Tank Management Bureau
Permitting & Compliance Division

Montana Department of ENVIRONMENTAL QUALITY

Lee Metcalf Building
1520 East Sixth Ave
P.O. Box 200901
Helena, MT 59620-0901

Phone 406-444-4725
Fax 406-444-1374
email: tstepp@mt.gov

From: Todd Kuxhaus [mailto:tkuxhaus@greatwesten g.com]
Sent: Wednesday, October 13, 2010 11:25 AM
To: Stepp, Tim; Hendrickson, Mary
Cc: ateegarden@ci.helena.mt.us; Gery Carpenter; Nathan Steiner
Subject: Centennial Park - Encountered Waste Notification

Mary and Tim,

Yesterday, we hit some more garbage at the site. This time it was at two locations near the north end of the new YMCA parking lot. One location is along a storm drain trench, the other was at the bottom of a light pole base. We have proceeded in accordance with the details of the post-closure plan utilizing GCL and fine grained material as pipe bedding/backfill. Also, all removed waste has been hauled to the transfer station. We have documented the location and materials used to repair the areas.

Please let me know if you require anything further.

Thanks,

Todd K. Kuxhaus, PE | Project Manager

Great West Engineering, Inc.
PO Box 4817
2501 Belt View Drive
Helena, MT 59604

PHONE: 406-449-8627
DIRECT: 406-495-6167
FAX: 406-449-8631

Stepp, Tim 7/1/2010

From: Todd Kuxhaus [tkuxhaus@greatwesteng.com]
Sent: Thursday, July 01, 2010 7:52 AM
To: Hendrickson, Mary
Cc: Gery Carpenter; Nathan Steiner; Leland, Rob (Helena Sand & Gravel); Stepp, Tim; Ben Sautter
Subject: Centennial Park

Mary,

As you may have noticed, Helena Sand and Gravel is making good progress importing fill to the site. Beginning on July 6, 2010, they will begin cutting material from the western portion of the site. Although we have designed the grading to be above the top of the municipal waste, there is still a chance we will encounter some waste during cutting. Cutting operations should last about 10 working days. I wanted you and your group to be aware that if we hit municipal waste we will be contacting you as per the requirements of the post-closure plan. I hoping that a member of your group would be available if this occurs to minimize construction delays.

Please give me a call if you have any questions or concerns.

Thanks,

Todd K. Kuxhaus, PE | Project Manager

Great West Engineering, Inc.
PO Box 4817
2501 Belt View Drive
Helena, MT 59604

PHONE: 406-449-8627
DIRECT: 406-495-6167
FAX: 406-449-8631

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
5-13-10 JH

May 12, 2010

Mr. Ryan Leland, P.E.
City of Helena Engineer
316 N. Park
Helena, MT 59623

RE: CONSTRUCTION APPROVAL—HELENA CENTENNIAL PARK
Closed City of Helena Class II Landfill (Lic. # 90)

Dear Ryan:

The Department of Environmental Quality (Department) has reviewed the construction bid documents submitted for the Centennial Park Project at the subject facility.

The Department approves construction of the Centennial Park as proposed.

Please notify Mary Louise Hendrickson (406-444-1808), if waste is encountered during excavation and grading. We look forward to the final QA/QC Report upon completion of the project.

For assistance, please contact me at the Permitting and Compliance Division: Voice 406-444-4725 or email tstepp@mt.gov.

Sincerely,

Rick Thompson for

Tim Stepp
Engineer, Solid Waste Program
Waste & Underground Tank Management Bureau

Cc: Amy Teegarden, Director, City of Helena Parks (address above)
Ben Sautter, Superintendent, City of Helena Solid Waste (address above)
Todd Kuxhaus, P.E., Great West Engineering, P.O. Box 4817, Helena, MT 59604

File: **Lic#90**/Class II Landfill/City of Helena/Post Closure
Path: G:\WUT\SWS\closure\helena\CentennialPark-constApprov0510.doc

MAILED

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
12-31-09

December 30, 2009

COPY

Mr. Ryan Leland, P.E.
City of Helena Engineer
316 N. Park
Helena, MT 59623

RE: APPROVAL—LANDFILL FINAL USE / HELENA CENTENNIAL PARK
Closed City of Helena Class II Landfill (Lic. # 90)

Dear Ryan:

The Department has completed its review of the Post-Closure Plan (PCP) and 95% construction documents submitted for the Centennial Park Project to modify the final cover and post-closure final use of the closed City of Helena Class II Landfill. We appreciate that the City has adequately addressed all of the previous comments on the draft PCP and design documents.

The landfill Post-Closure Plan and project documents for Centennial Park are approved for construction on the landfill final cover with the following minor additions/corrections:

(1) Please add a note to the Special Provisions paragraphs 1.3 (Section 01000-Page 2) directing the QA engineer to contact me (406.444.4725) at the Department if a significant thickness of solid waste or any methane control/monitoring utilities are encountered in the parking lot or any other grading operations during construction.
(2) Correct Water/Sewer Trench detail to show GCL below pipe on Sheet C-33.
(3) Correct Liner Penetration detail to show PVC boot welded to PVC liner around pipe.
(4) Correct Liner Penetration detail to show bentonite seal around pipe contact with liner.

We approve the use of asphalt as final cover in the extended parking lot areas, as long as tensional cracks remain adequately sealed annually. Detail on Sheet C-33 shows approved repair of cap if waste is encountered during other grading. Please add details in the as-built drawings for the already constructed extension of the methane collection trench adjacent to the Armory. Also add the extended methane trench testing to the final project QA/QC Report upon completion.

Thanks for your fine cooperation and assistance. Please feel free to contact me at the Permitting and Compliance Division for assistance: Voice 406.444.4725 or email tstepp@mt.gov.

Sincerely,

Tim Stepp
Engineer, Solid Waste Program
Waste & Underground Tank Management Bureau

Cc: Amy Teegarden, Director, City of Helena Parks; Ben Sauter, Superintendent, City of Helena Solid Waste
File: **Lic#90**/Class II Landfill/City of Helena/Post Closure
Path: G:\WUT\SWS\closure\helena\CentennialPark-FinalCoverMod1209.doc

COPY

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
6-17-09

June 15, 2009

Rich Lynd
Parks Superintendent
316 N. Park
Helena, MT 59623

COPY

RE: HELENA SKATE PARK EXPANSION—FINAL COVER INSPECTION
City of Helena Class II Landfill (Lic. # 90)

Dear Mr. Lynd:

The City of Helena notified the Department that construction of the Helena Skate Park expansion had commenced, being located immediately adjacent to the closed City of Helena Class II landfill. On June 11, 2009, I met on site with you and Amy Teegarden to inspect the material uncovered during backhoe excavation of the subgrade surrounding the park on the north side of the YMCA building.

Verbal approval was given on site to proceed with construction of the Helena Skate Park expansion as planned. All construction lies outside the final cover of the landfill, but waste flanks the skate park area beneath the road on the immediate northern and western margins. On-site soils were approved for embankments and trench backfill. Permission was given to bury the abandoned well EW-6 (replaced by extraction well EW-7). The YMCA methane extraction trench was staked and well marked to avoid its disturbance during construction.

A trace of largely inert debris was intermixed with the soil along this poorly defined eastern edge of the landfill final cover located between the YMCA and the Old Glory Memorial site. Very thin horizons of dispersed ash lie within the upper foot, presumably locating the burn area for the final landfill phase (on-site verbal Jodi Bingham). The NW terminus of the northern-most stormwater pipe trench locates the edge of the waste boundary and final cover of the landfill. Swales in the curb along the northern edge of the road indicate that the edge of the landfill heads south from Old Glory and turns abruptly west and then turns abruptly south along the northern and western edges, respectively, of the Helena Skate Park. The southern boundary of the park expansion lies immediately adjacent to methane extraction wells EW-7 and EW-8.

Thank you for the notification of construction. Please feel free to contact me at the Permitting and Compliance Division for assistance: Voice 406.444.4725 or email tstepp@mt.gov.

Sincerely,

Tim Stepp
Solid Waste Program
Waste & Underground Tank Management Bureau

Encl: Field Inspection Form
Cc: Amy Teegarden, Director of Parks and Recreation; Jodi Bingham, Consultant
Martin Van Oort, DEQ Solid Waste
File: **Lic#90**/Class II Landfill/City of Helena/General Correspondence
Path: G:\WUT\SWS\engineering\helena\SkateParkExpn0609.doc

Dept. of Environmental Quality
Permitting & Compliance Division
Solid Waste Management Program
P.O. Box 200901
Metcalf Building
Helena, Montana 59620-0901
(406) 444-4323

Date: 6/11/09
Time of Arrival: 11 am
Time of Departure: Noon
Total Hours: 1 hr

SOLID WASTE MANAGEMENT SITE/SYSTEM - ON-SITE OBSERVATION FORM
(This is not the Notice of Violation mentioned in Section 75-10-227, MCA)

Facility Name Helena Skatboard Park License No. #90
Solid Waste Management Site/System Description City of Helena
Location Park fringes E flank of Old City Class II final cap
Owner City of Helena Phone
Address City, MT
Operator N/A Phone
Address City, MT
Landfill Representative(s) Present [signature] Title Park Supt, City
Amy Teigarden, Jodi Bingham Title
DEQ Representative(s) Present Tim Stepp Title SWP engineer.
Title

(Answer all questions; mark N/A if not applicable; please print)

A. General Operational and Maintenance Requirements — Yes No N/A

1. Operational Records located where?
2. Dumping confined to a manageable area? [ARM 17.50.510(4)]
3. Refuse properly covered after each operating day? [ARM 17.50.511(1)(a)]
   a) Alternative Daily Cover in use? [ARM 17.50.511(1)(a)]
   b) If so, what kind?
4. If a Class III landfill, covered at least quarterly? [ARM 17.50.511(2)]
5. Daily Spreading and compaction of refuse adequate? [ARM 17.50.511(1)(a)]
6. Depth, spreading, and grading of intermediate cover adequate? [ARM 17.50.511(1)(a)]
7. → Final cover on filled areas? [ARM 17.50.530(1)(a)] Final cover undisturbed
8. Rodents and insects controlled? [ARM 17.50.510(7)] — X
9. Blowing litter controlled? [ARM 17.50.510(6)]
10. Access to site controlled? [ARM 17.50.510(4) and (5)]
    Sign(s)____ Gate(s)____ Fences(s) [ARM 17.50.511(1)(c)]____ Supervision____
    (Check all that apply)
11. Approach road properly maintained? [ARM 17.50.505(1)(b)]
12. Solid Waste Management facility equipment visible on-site?
    a) If so, what kind(s)
13. Salvaging going on? [ARM 17.50.510(8)]
    a) Approved salvaging plan on-file with DEQ?
14. What method is used to measure waste volumes? [ARM 17.50.511(1)(o)]

a) How often is volume measured?

NOTES: Jodi Bingham — oversight contractor
200 cost intercepted ash in "burn area" where skate park is located.
3 Methane trenches intercepted same burn ashes but no MSW
☆ EW-6 may be abandoned & backfilled b/c replaced by adj EW-7
☆ On-site fill may backfill trenches & raise embankments
Minor ~ 1 ft cut on S margin of concrete shows & trace brick debris
Deepest 4 ft cut on NW corner @ stormwater pipe hit mixed waste at W terminus
[signature] 6/11/09

 Site Name: City of Helena DEQ Copy-White Owner/Operator Copy-Canary 12/96

Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MAILED
5-21-08 gh

May 20, 2008

Mr. Kevin Harrington
CITY OF HELENA – ENGINEERING DIVISION
316 North Park – Room 417
Helena, MT 59624

RE: Closed City of Helena Landfill – License #90
Proposed Centennial Park Preliminary Enhancements
Investigation to Determine the Location of Historic Garbage
Approval to Proceed

Dear Mr. Harrington:

The Department of Environmental Quality (Department) has reviewed the request, submitted on your behalf by Robert Peccia & Associates, to resume the site excavation and grading work at the closed City of Helena Landfill. The Department approves the resumption of activities with the following conditions:

- Prior to the removal of additional fill material from the current project area, the City must determine the depth to and areal extent of the historic garbage. Your request to resume activities included a map of the proposed test pit locations. The test pit locations are approved. During the investigation, work shall proceed as follows:
  - The overlying fill material at each test pit location shall be removed in lifts no greater than 6-inches deep;
  - To ensure that the lower explosive limit (LEL) of landfill gas is not exceeded in the vicinity of the test pits during excavation, the methane concentrations must be monitored when personnel are working in the area;
  - When historic garbage is discovered, excavation activities will be halted until the location and elevation of the garbage is determined. The location coordinates and elevation measurements must be recorded and provided to the Department upon completion of the project. The depth of continued site excavation and grading will be determined by the Department once the elevation of historic garbage has been established. The approval for continued excavation and site grading will be provided in a separate letter to the City.

The Department is aware that the City proposes to develop the closed landfill as the Centennial Park recreational complex. The Administrative Rules of Montana (ARM) 17.50.531 require Department approval for all post-closure uses. In addition, these uses must be approved prior to implementation. The currently planned post-closure use was not part of the facilities post-closure use plan. Therefore, the Department requires the submittal of a post-closure plan that demonstrates the proposed post-closure use will not disturb the integrity of the final cover, liner(s), or any components of the containment system, or the function of the monitoring systems. The updated post-closure plan should include a Site Master Plan and design details as well as the measures to be implemented to ensure the security of the landfill groundwater and methane monitoring and extraction systems.

If you have any questions regarding this approval, or require further information regarding the submittal of the updated post-closure plan, please do not hesitate to contact me directly at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Program.

Respectfully,

Mary Louise Hendrickson

Mary Louise Hendrickson
Project Lead
Solid Waste Licensing
Phone: 406-444-1808; Fax: 406-444-1374
Email: mhendrickson@mt.gov

File: Closed Landfills\L&C County\Closed City of Helena\#90\Closure and Centennial Park
Path: G:\WUT\SWS\closure\lewisClark\ClosedHelena-WasteDepthInvstgtn-apprvl.doc
cc: Mr. John Piccone, Robert Peccia & Associates, PO Box 5653, Helena, MT 59604
Mr. John Rundquist, City of Helena, 316 N. Park, Helena, MT 59624
Mr. Ben Sautter, City of Helena, 316 N. Park, Helena, MT 59624
Mr. Mike Wignot, Hydrometrics, Inc., 3020 Bozeman Ave., Helena, MT 59601
Mr. Rich Lynd, City of Helena Parks Dept., 340 Neil Avenue, Helena, MT 59623

HELENA
PO Box 4817 ▪ 2501 Belt View Drive
Helena, MT 59604
406.449.8627 ▪ Fax 406.449.8631

GreatWest engineering

January 7, 2011

RECEIVED ON
JAN 12 2011
Dept. of Environmental Quality
Waste & Underground
Tank Management Bureau

Mary Louise Hedrickson
Montana Department of Environmental Quality-Solid Waste Program
PO Box 200901
Helena, MT 59620-0901

RE: Closed City of Helena Landfill
Post-Closure Plan Addendum

Dear Mary Louise:

Through the course of construction, site limitations have resulted in the need to relocate the bicycle freeride park. The attached exhibit shows this new proposed location.

We are therefore, requesting approval of this new freeride park location. If you have any questions or comments please contact me.

Sincerely,

Great West Engineering, Inc.

Todd Kuxhaus, PE
Project Manager

Enclosures: Freeride Exhibit

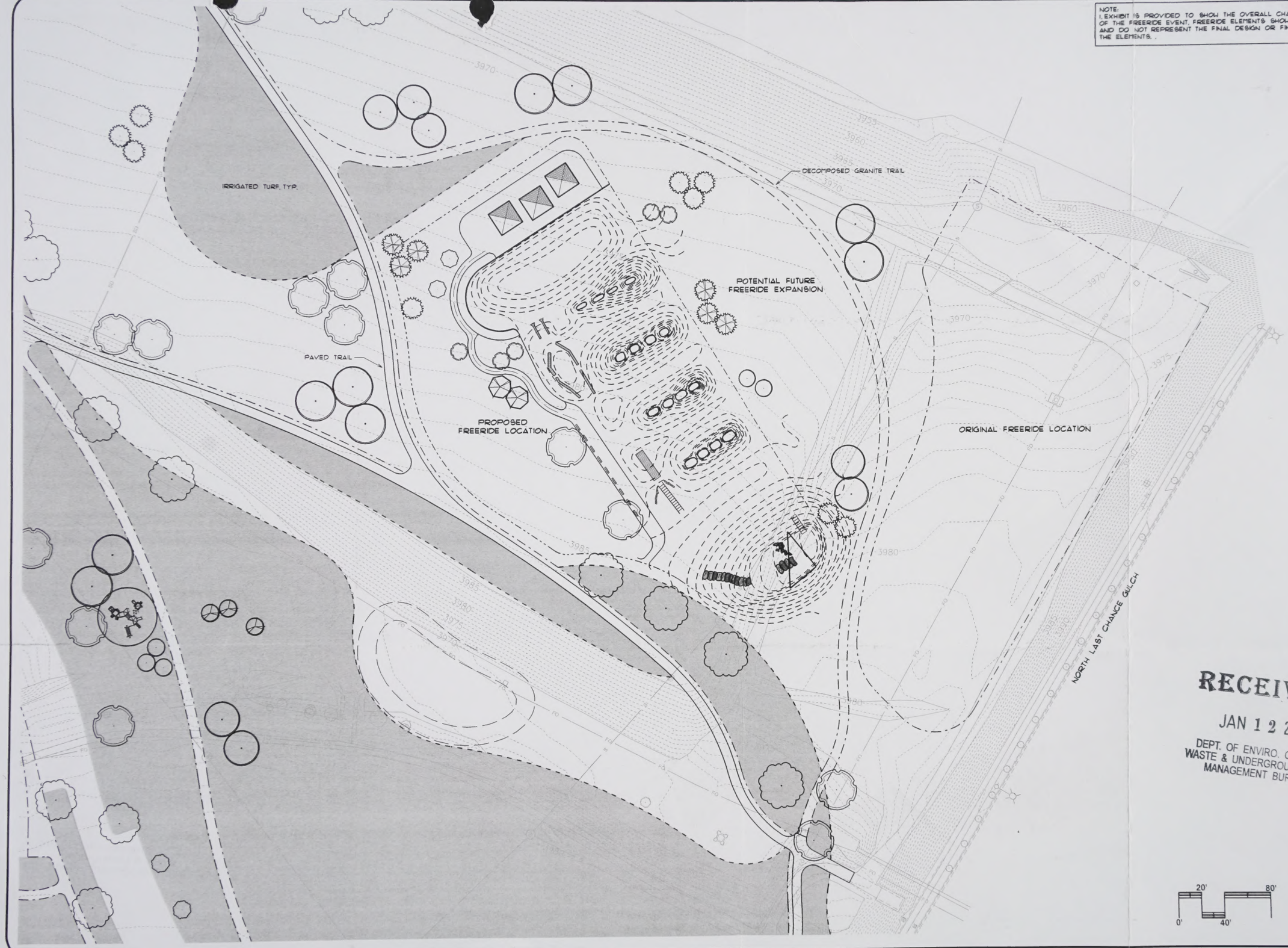
Cc: Amy Teegarden – City of Helena
Gery Carpenter - City of Helena
Nathan Steiner – Carl Thuesen

BILLINGS
115 N Broadway
Suite 500
Billings, MT 59101
406.652.5000
Fax 406.248.1363

BOZEMAN
602 Ferguson
Suite 1
Bozeman, MT 59718
406.587.0504
Fax 406.587.0541

RECEIVED ON
JAN 12 2011
Dept. of Environmental Quality
Waste & Underground
Tank Management Bureau

NOTE:
1. EXHIBIT IS PROVIDED TO SHOW THE OVERALL CHANGE IN LOCATION OF THE FREERIDE EVENT. FREERIDE ELEMENTS SHOWN ARE CONCEPTUAL AND DO NOT REPRESENT THE FINAL DESIGN OR FINAL LOCATION OF THE ELEMENTS.



RECEIVED
JAN 12 2011
DEPT. OF ENVIRO. QUALITY
WASTE & UNDERGROUND TANK
MANAGEMENT BUREAU

0' 20' 40' 80'

Centennial Park
FREERIDE EXHIBIT: LOCATION ADJUSTMENT

CARL THUESEN
A S L A
GOLF COURSE ARCHITECTURE
LANDSCAPE ARCHITECTURE
1925 GRAND AVE. SUITE 105
P.O. BOX 22943
BILLINGS, MT 59104
406/252-5545 FAX 245-9855

Drawn by: NGS
Date: 12/20/10
Checked by: NGS
Date: 12/20/10
Rev: -
Rev: -
File: -

SHEET 01

Hydrometrics, Inc.
consulting scientists and engineers

3020 Bozeman Avenue
Helena, MT 59601
(406) 443-4150
Fax: (406) 443-4155
www.hydrometrics.com

August 14, 2008

RECEIVED
AUG 18 2008
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

Mr. Mike Friend
Engineering Technician
City of Helena
City/County Building
316 North Park Ave.
Helena, MT 59623

Dear Mike,

I have reviewed the plans for the Helena Skate Park expansion and would like to submit the following comments:

- Sheet L1: The location of the gas extraction system control boxes does not match our survey data of these locations. I have included a figure showing their actual location in relation to the YMCA and blower building with an underlay of the skate park design. If you would like a copy of our survey data, please let me know.

- Sheet L1: The irrigation control box located just to the south of the gas extraction system marked for removal is actually part of the gas extraction system and should NOT be removed by the Parks Department.

- Sheet L3: The new bowl located in the southwest corner of the project is over the top of the gas extraction system main line. Could we move the bowl slightly to the west to avoid construction over the top of the main?

- Sheet L4: The drain lines for the two new bowls cross the landfill gas main in two places. I would like to special notations on the drawing warning the contractor to be especially careful excavating in these areas.

- Sheet L8: Detail I shows a general valve box detail for the gas extraction system, but the location of this box is never shown on the drawings. Rather than a valve box, I would recommend that we put a riser on the extraction well and relocate all the controls to the new higher elevation and then reconnect to the main. This would allow us easy access for monitoring the extraction system without resorting to

confined space entry procedures. If you would like us to provide detail drawings for this portion of the work, please let us know.

Please call if you have any questions.

Sincerely,

Jodi Bingham, P.E.
Environmental Engineer/Chemist

Enclosure

c: Mr. John Rundquist, City of Helena
Mr. Ben Sautter, City of Helena
Ms. Amy Teegarden, City of Helena
Mr. Mike Wignot, Hydrometrics
Ms. Mary Louise Hendrickson, MDEQ

REVISIONS	NO	BY	DATE	DESCRIPTION

REVISIONS	NO	BY	DATE

DRAWING FILE NUMBER
127303H001
AUTOCAD 2004 DRAWING (DWG)
SHEET NUMBER
REV

UPDATE TIME: 4:28 PM
LTABORSKY\HEL\20080729\I:\LAND PROJECTS\127382O3\DWG\127303H001.DWG

SYM	DESCRIPTION
TOP	TOP OF LEDGE
TIE	TIE ELEVATION
HP	HIGH POINT
EG	EXISTING GRADE
	EROSION CONTROL FENCE REFER TO DETAIL 2L2
	STORM DRAIN LINE - (C900) - SIZE AS NOTED
	SLOPE DIRECTION
	6" FLOOR DRAIN - SEE DETAIL A1.5
	PROPOSED SAWCUT LOCATION
	SKATEPARK LIMITS OF CONSTRUCTION

GRADING NOTES

1. THIS PLAN PROVIDES GENERAL GRADING INFORMATION. ALL SURVEYING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. EXPORTATION OF SOIL, WHICH MAY BE NECESSARY TO MEET THE GRADES SHOWN ON THIS PLAN, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PART OF THIS CONTRACT.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATION OF ALL EXISTING UTILITIES IN THE FIELD. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND FOR GENERAL INFORMATION ONLY.
4. ALL HIGH POINTS, LOW POINTS, OR GRADE BREAKS ON CONCRETE SURFACES SHALL HAVE A SMOOTH CURVE. CONCRETE SHALL NOT BE BUILT TO A POINT.
5. THE CONTRACTOR SHALL MATCH THE NEW GRADES WITHIN THE LIMITS OF WORK TO THE EXISTING GRADES.
6. CONTRACTOR SHALL PROVIDE SECURITY BARRIER DURING CONSTRUCTION & UNTIL ACCEPTED. REFER TO CITY REQUIREMENTS FOR SPECIFICS.
7. EROSION CONTROL FENCING REQUIRED TO BE IN PLACE PRIOR TO ANY SITE WORK.
8. DRAINAGE BEHIND WALLS & TRANSITION RAMPS IS AT THE DISCRETION OF THE CONTRACTOR.

REVISIONS	NO	BY	DATE	DESCRIPTION

REVISIONS	NO	BY	DATE	

SCALE VERIFICATION BAR IS ONE INCH ON ORIGINAL DRAWING
0 ▬ 1
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

Project No.:		
DRAWN BY	---	7/28/08
CHECKED BY		
APPROVED BY		
SCALE: AS NOTED		

Hydrometrics, Inc.
Consulting Scientists and Engineers
Helena, Montana 59601
3020 Bozeman Avenue
(406) 443-4150

DRAWING FILE NUMBER
127303H001
AUTOCAD 2004 DRAWING (DWG)
SHEET NUMBER | REV

UPDATE TIME: 4:28 PM
LTABORSKY\HEL\20080729\I:\LAND PROJECTS\1273B203\DWG\127303H001.DWG

MORRISON MAIERLE, INC.
An Employee-Owned Company

ENGINEERS
SURVEYORS
PLANNERS
SCIENTISTS

1 ENGINEERING PLACE • P.O. BOX 6147 • HELENA, MT • 59604 • 406-442-3050 • FAX: 406-442-7862

90 - closed.

County L+C
Facility & # Old Helena
Closure
Finan Assur
GW Corr Meas
GW Monitoring
GW Reports
Inspections
Other:
Landfarm
Liner
Methane
O & M
Run - On

January 27 2005

Mr. Tim Stepp
Montana Department of Environmental Quality
Permitting and Compliance Division
Waste and Underground Tank Management Bureau
P.O. Box 200901
Helena, Montana 59620

RE: Methane Gas Controls
Carroll College New Residence Hall
Infrastructure Improvements Project
Helena, Montana

City of Helena Project Number 02-22

Dear Tim:

Enclosed for your files are the final as-built drawings and final certification statement for the above-referenced project. Also enclosed are the as-built drawings and construction photos associated with the methane gas controls installed in association with installation of the project's storm water mainline across the old landfill under Centennial Park.

If you have any questions about this submittal or need additional information regarding the project construction, please don't hesitate to call me. Thank you for your assistance.

Sincerely,
MORRISON-MAIERLE, INC.

Sanna M. Yost

Sanna M. Yost, P.E.
Senior Civil Engineer

Enclosures: Final Certification Statement
Final As-Built Drawings (Entire Project and Methane Gas Controls)
Construction Photos of Methane Gas Controls

CC: Ms. Lynn Etchart - Carroll College (w/o Entire Project As-Built Plans)
Mr. John Sullivan - Attorney (w/o Entire Project As-Built Plans)
Mr. Ryan Leland - City of Helena (w/o Entire Project As-Built Plans)
Ms. Jodi Bingham - Hydrometrics, Inc.

H:\WATER RESOURCES\0245\017-Storm Pond\Pond\012705 Stepp.doc

FINAL CERTIFICATION

CONSTRUCTION COMPLETED IN ACCORDANCE WITH

APPROVED PLANS AND SPECIFICATIONS

Project Sponsor: Carroll College

Project Name: **Carroll College Residence Hall in Helena, Montana**
Infrastructure Construction Associated with the new dorm –
Water, Sanitary Sewer, Storm Water, Streets and Parking

City of Helena Project Number: 02-22

I, Sanna M. Yost, a Registered Professional Engineer in the State of Montana, license number 7316E, do hereby state that, to the best of my knowledge, construction of the above-referenced project has been completed in accordance with the approved project plans and specifications. I further state that the record ("as-built") drawings for the work that have been completed are considered a true and accurate representation of the completed construction based on site observations of engineering inspectors and the information provided by the Owner, Carroll College, and the Contractor, Dick Anderson Construction, Inc.

Sanna M. Yost, P.E.
Name

7316PE
P.E. Number

Sanna M. Yost
Signature

January 21, 2005
Date

Morrison Maierle, Inc.
1 Engineering Place
P.O. Box 6147
Helena, MT 59604
(406) 442-3050

MONTANA
SANNA M. YOST
7316 E
REGISTERED PROFESSIONAL ENGINEER

FINAL CERTIFICATION

CONSTRUCTION COMPLETED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS

Project Sponsor: Carroll College

Project Name: Carroll College Residence Hall in Helena, Montana
Infrastructure Construction Associated with the new Grant - Water, Sanitary Sewer, Storm Water, Streets and Parking

City of Helena Project Number: 02-22

I, Sanna M. Yost, a Registered Professional Engineer in the State of Montana, license number 7316E, do hereby state that, to the best of my knowledge, construction of the above-referenced project has been completed in accordance with the approved project plans and specifications. I further state that the record ("as-built") drawings for the work that have been completed are considered a true and accurate representation of the completed construction based on site observations of engineering inspectors and the information provided by the Owner, Carroll College, and the Contractor, Dick Anderson Construction, Inc.

Sanna M. Yost, P.E.
Name

7316PE
P.E. Number

Signature

January 21, 2023
Date

Morrison Maierle, Inc.
1 Engineering Place
P.O. Box 6147
Helena, MT 59604
(406) 442-3060

Carroll College
Infrastructure Improvements
Associated with
Construction of New Residence Hall

Landfill Crossing Change Order
Methane Migration Controls along Storm Water
System Improvements

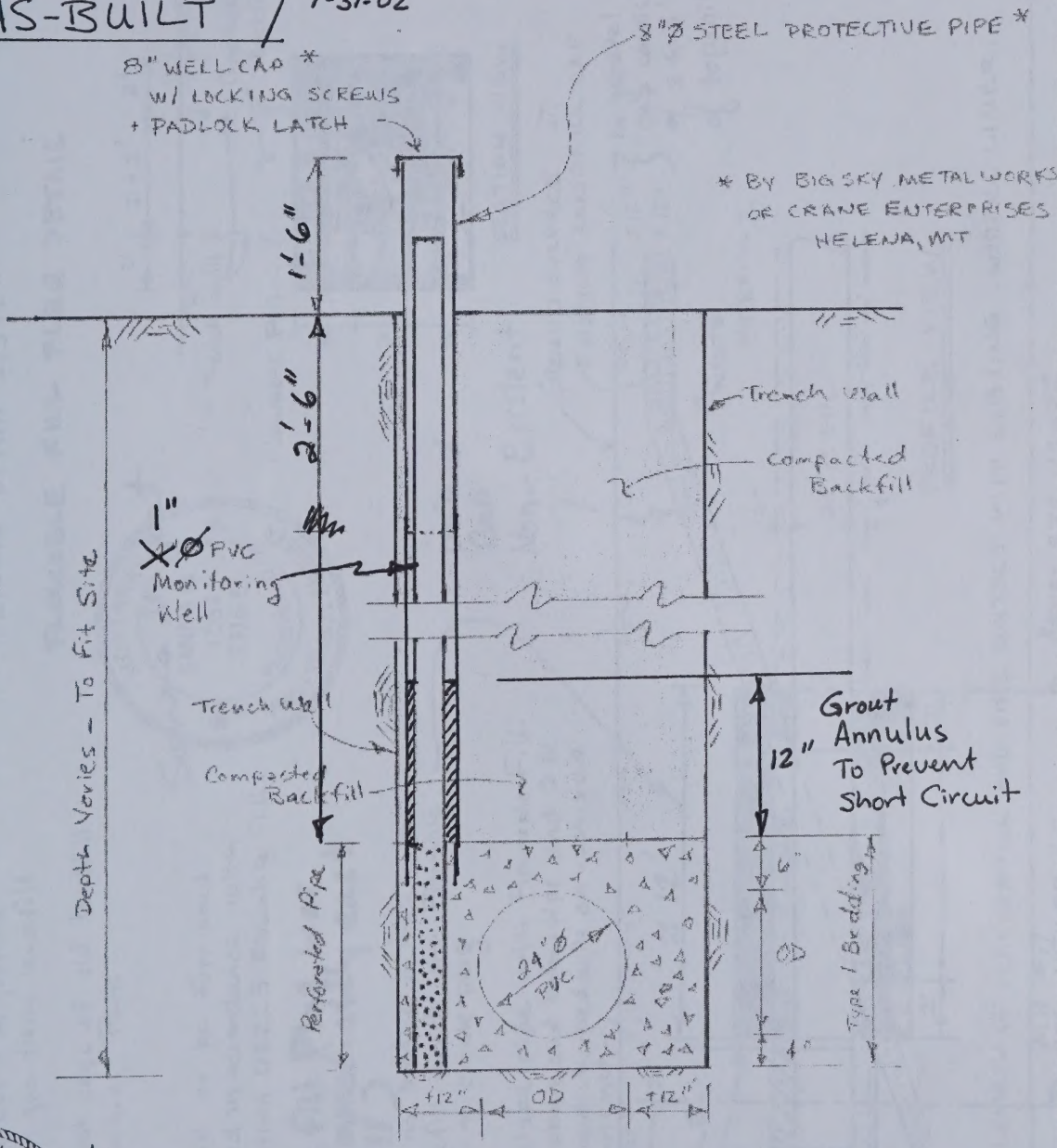
As-Built Information
Construction - January 2003

City of Helena Project #02-22

MORRISON MAIERLE, INC.

PROJECT CARROLL COLLEGE RESIDENCE HALL		
BY: SMY	DATE 12-17-02	PROJ. NO. 3574
CHK	DATE	PAGE 1 OF 1

AS-BUILT 1-31-02



MONTANA SANNA M. YOST 7316 E REGISTERED PROFESSIONAL ENGINEER

Sanna M. Yost

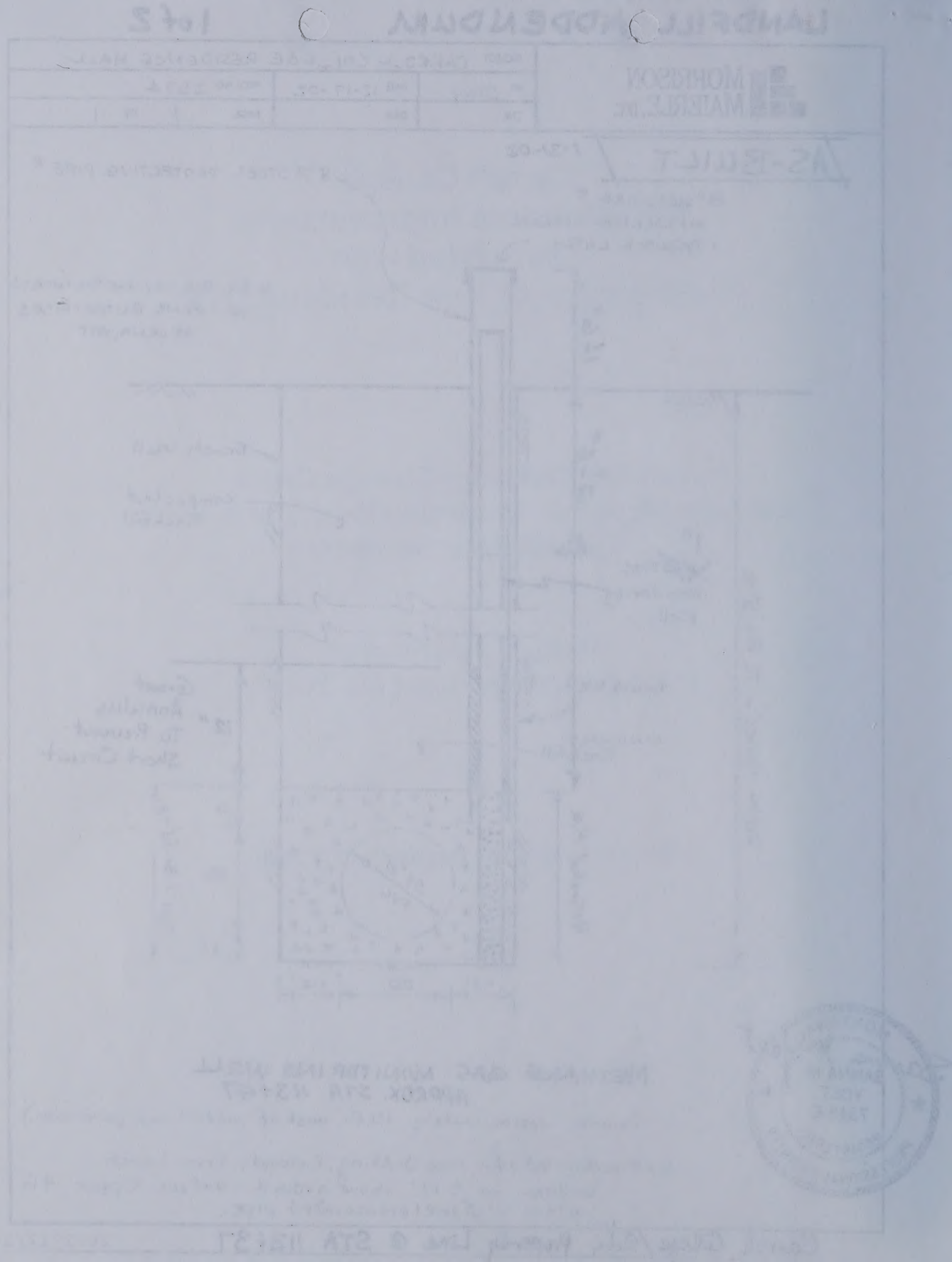
METHANE GAS MONITORING WELL
APPROX. STA 113+47

(Locate approximately 10 ft west of landfill cap perforation.)

Well perforated w/in Pipe Bedding. Extends from trench bottom to ±12' above ground surface. Upper 4 ft within 8" Ø steel encasement pipe.

Carroll College/City Property Line @ STA 113+37

2002/12/20



ASBUILT 1-31-02

CARROLL COLLEGE RESIDENCE HALL PROJECT
STORM DRAIN SYSTEM

FLOWABLE FILL PLUG DETAIL

Purpose: To prevent migration of methane gas from landfill

Location: West edge of old landfill in Centennial Park

Note:

Flowable Fill to be furnished and installed in accordance with MPW Section 02225 Flowable Fill.

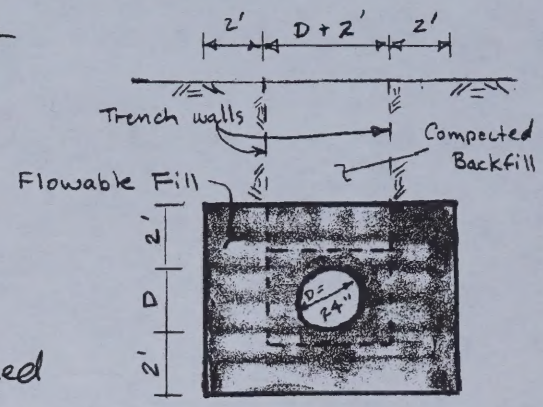
Flowable Fill Plug was installed immediately east of MH #11

Use no bedding in this area. Back fill trench with Flowable Fill to create plug

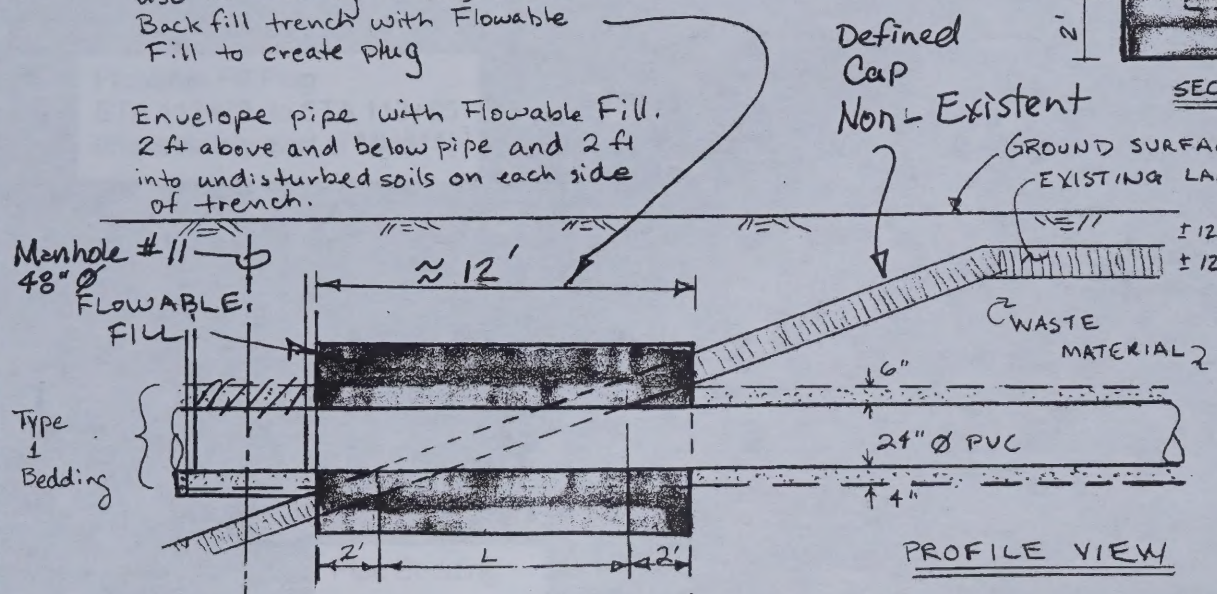
Envelope pipe with Flowable Fill. 2 ft above and below pipe and 2 ft into undisturbed soils on each side of trench.

MONTANA
SANNA M. YOST
7316 E
REGISTERED PROFESSIONAL ENGINEER

Sanna M. Yost



SECTION VIEW



PROFILE VIEW

L = LENGTH OF PERFORATION AND PIPE CONTACT WITH EXISTING LANDFILL LINER.

MH #11 STA 113+70.47

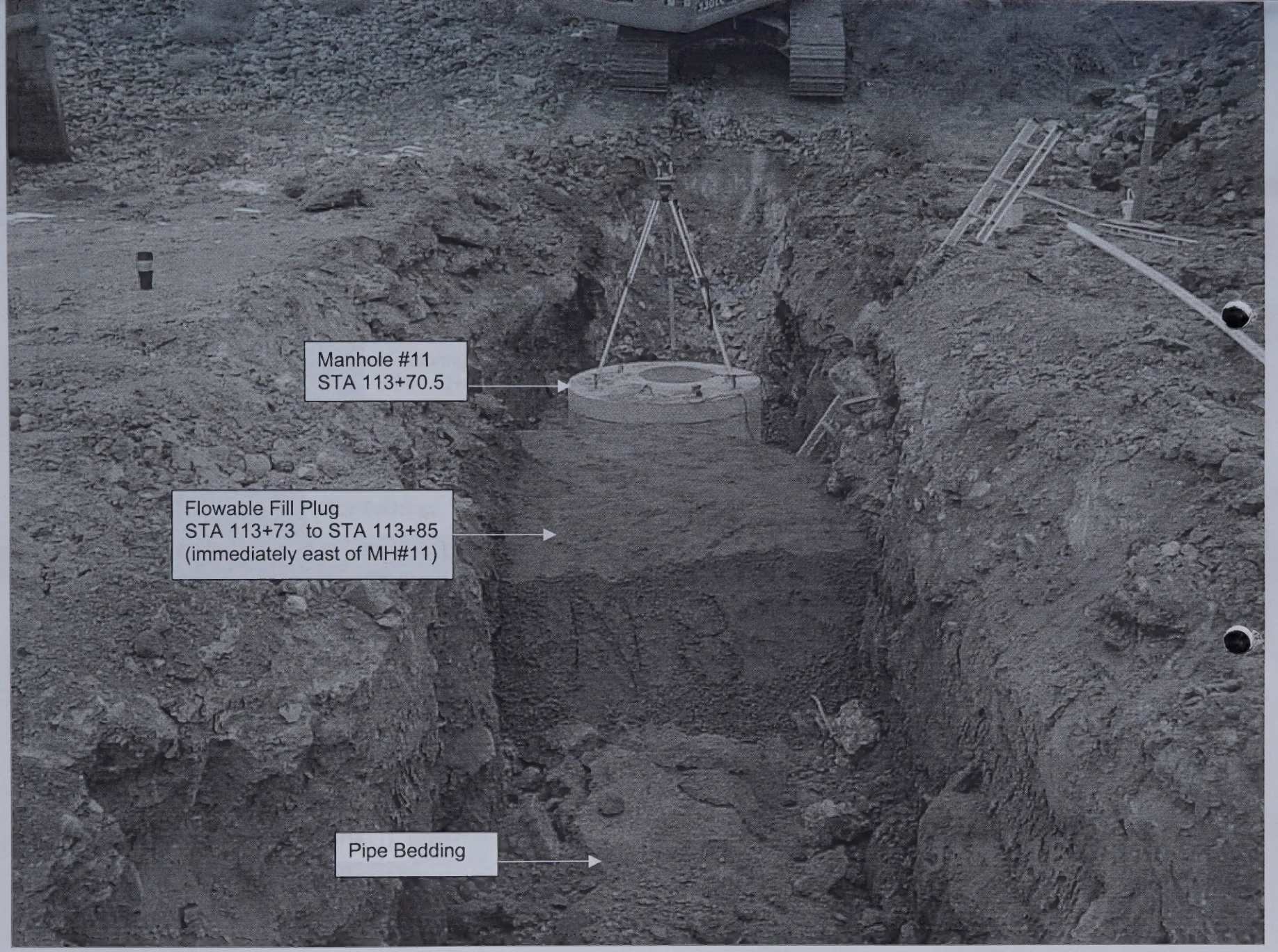
Approx. STA 113+85

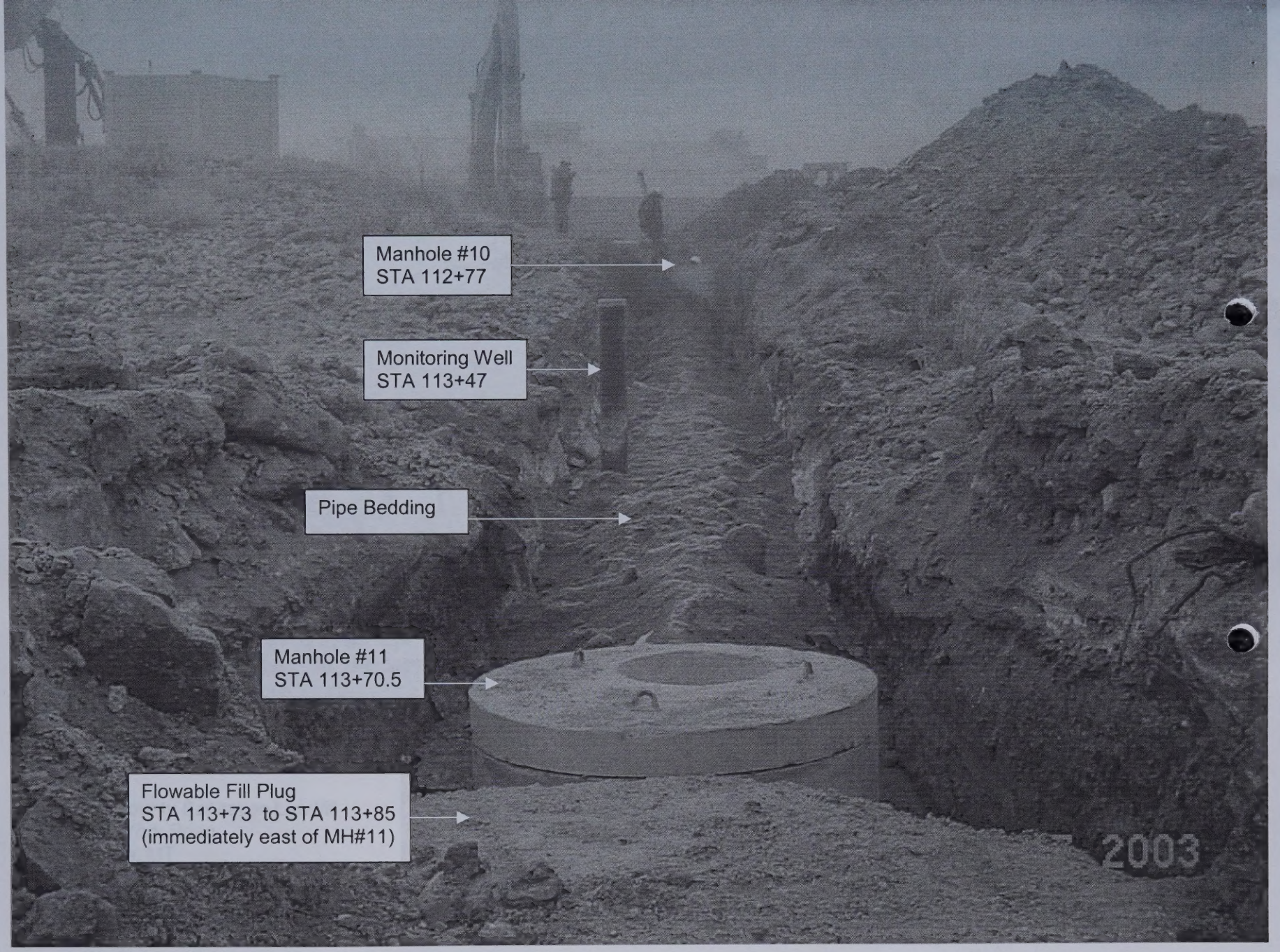
MORRISON MAIERLE, INC.

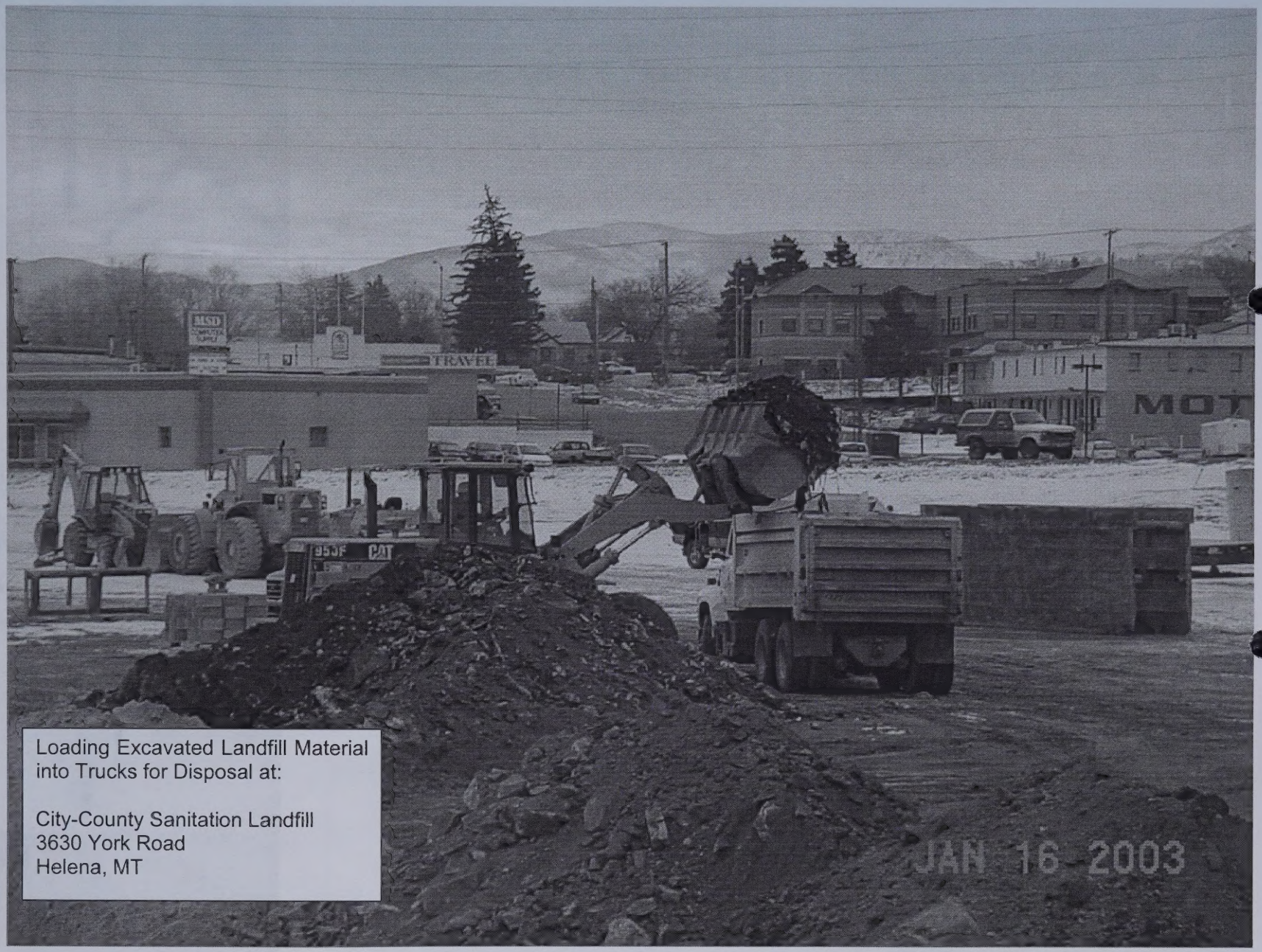
PROJECT: CARROLL COLLEGE RESIDENCE HALL
BY: SMY
CHK:
DATE: 12-10-02
PROJ. NO. 3574
PAGE: 1 OF 1

LANDFILL ADDENDUM 2 of 2

2002/12/12

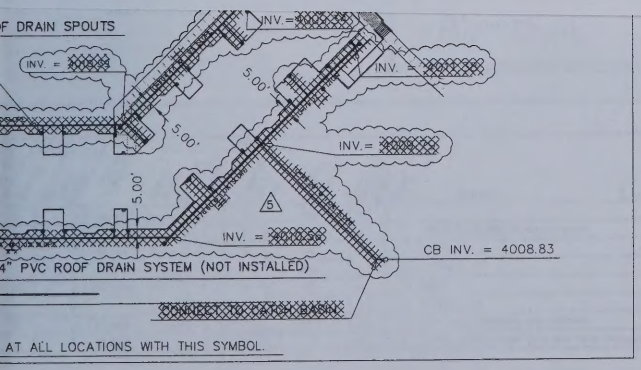

Manhole #11
STA 113+70.5
Flowable Fill Plug
STA 113+73 to STA 113+85
(immediately east of MH#11)
Pipe Bedding


Manhole #10
STA 112+77
Monitoring Well
STA 113+47
Pipe Bedding
Manhole #11
STA 113+70.5
Flowable Fill Plug
STA 113+73 to STA 113+85
(immediately east of MH#11)
2003



Loading Excavated Landfill Material into Trucks for Disposal at:

City-County Sanitation Landfill
3630 York Road
Helena, MT



DRAIN SYSTEM

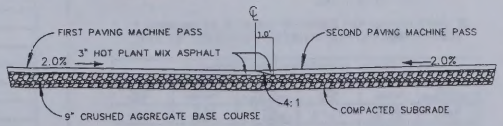
CONSTRUCT OPTION 1 HOT JOINT IN ASPHALT PAVEMENT AT CENTERLINE OF PARKING LOTS AS FOLLOWS:

1. OVERLAP CENTERLINE OF PARKING LOT 1.0' WITH FIRST PASS OF PAVING MACHINE.

2. HAND RAKE PAVEMENT EDGE AT CENTERLINE 4 HORIZONTAL TO 1 VERTICAL (4:1).

3. MAKE SECOND PASS WITH PAVING MACHINE AT CENTERLINE OF PARKING LOT PRIOR TO FINAL COMPACTION ROLLING AND FINISH ROLLING FIRST PASS.

THE CONTRACTOR MAY PROPOSE AN ALTERNATE METHOD FOR CONSTRUCTION OF THE ASPHALT JOINT IN THE CENTER OF THE PARKING LOTS FOR REVIEW AND APPROVAL BY THE ENGINEER. COLD JOINTS AND/OR VERTICAL BUTT JOINTS ARE NOT ALLOWED FOR ASPHALT PAVEMENT JOINTS AT THE CENTERLINE OF THE PARKING LOTS.



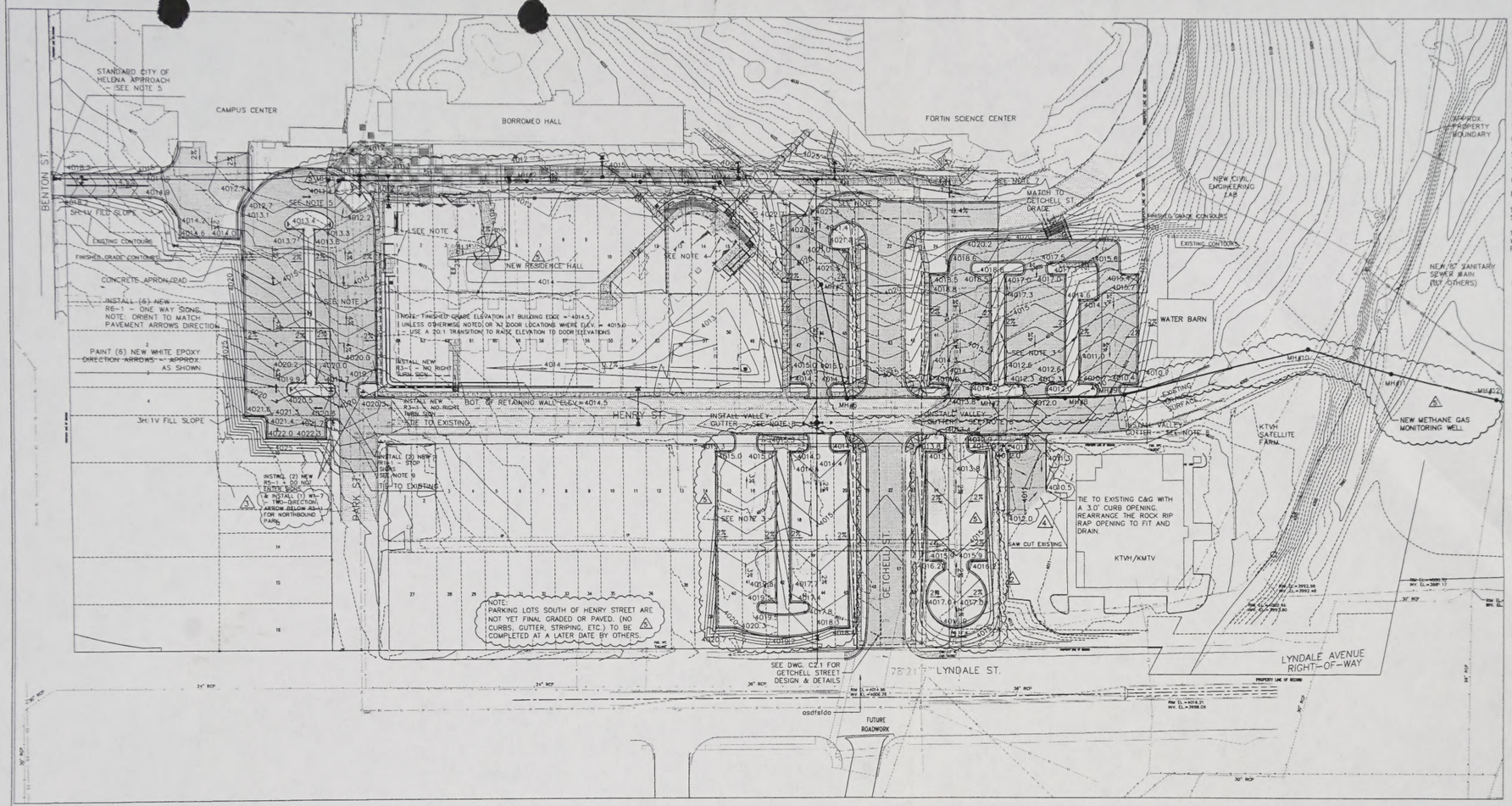
OPTION 1 ASPHALT PAVEMENT HOT JOINT DETAIL

NTS

GRADING AND PAVING PLAN
AS-BUILT DRAWING

DRAWN	JPS
CHK'D	
DATE	
SCALE	1"=50'-0"
CAD FILE	
DRAWING No.	C2.0
PROJECT	3574
REV.	3

RECEIVED
JAN 28 2005
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau



GRADING & PAVING PLAN

SCALE: 1"=50'-0"

SCALE IN FEET

AS-BUILT

SITE GRADING NOTES:

1. SPOT ELEVATIONS ARE FOR TOP BACK OF CURB, UNLESS NOTED OTHERWISE.
2. FINISHED GRADE CONTOURS WITHIN PAVEMENT/CONCRETE AREAS INCLUDE PAVEMENT/CONCRETE STRUCTURE DEPTH; CONTRACTOR MUST MAKE PROPER ALLOWANCES FOR THE STRUCTURE DEPTH DURING GRADING OPERATIONS.
3. FINISHED GRADE CONTOURS WITHIN PARKING LOT ISLANDS ARE FOR TOP OF COMMON EXCAVATION. SEE LANDSCAPE PLANS FOR ISLAND FINISH GRADE DETAILS.
4. SEE DRAWING C1.2 AND C1.3 FOR GRADING DETAILS OF THESE AREAS.
5. CONSTRUCT APPROACH AS PER MPW STANDARD DWG. # 02529-5. MODIFY AS SHOWN.
6. RE-SEED ALL AREAS DISTURBED BY CONSTRUCTION THAT ARE OUTSIDE OF THE AREAS DESIGNATED FOR ASPHALT PAVEMENT, CURB & GUTTER, CONCRETE SIDEWALKS AND LANDSCAPING.
7. CONSTRUCT NEW CURB & GUTTER IN ACCORDANCE WITH MPW STANDARD DWG. # 02528-1.
8. CONSTRUCT VALLEY GUTTER IN ACCORDANCE WITH MPW DWG. # 02529-1
9. ALL SIGNAGE TO BE INSTALLED ACCORDING TO DRAWING # C2.1 SPECIFICATIONS AND DETAILS.
10. USE CITY OF HELENA STANDARD SPECIFICATIONS FOR MANHOLE COVER AND WATER VALVE BOX ADJUSTMENTS. SEE DRAWINGS C2.2 AND C.2.3 RESPECTIVELY FOR DETAILED DRAWINGS.

SURVEY MONUMENTS & PROPERTY CORNERS

REFERENCE ALL SURVEY MONUMENTS, SECTION CORNERS, 1/4 CORNERS AND PROPERTY CORNERS PRIOR TO BEING DISTURBED BY CONSTRUCTION. REPLACE ANY MONUMENTS AND CORNERS THAT ARE DISTURBED DURING CONSTRUCTION.

TELEPHONE, NATURAL GAS AND ELECTRICAL POWER

CONTACT THE UTILITIES UNDERGROUND LOCATION CENTER AT LEAST TWO DAYS BEFORE BEGINNING EXCAVATION OR OTHER CONSTRUCTION OPERATIONS. (1-800-424-5555)

MONTANA PUBLIC WORKS (MPW) STANDARD SPECIFICATIONS

ALL ITEMS OF WORK UNDER THIS CONTRACT WILL BE COMPLETED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE MPW STANDARD SPECIFICATIONS:

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01580 - CONSTRUCTION TRAFFIC CONTROL

DIVISION 2 - SITEWORK

SECTION 02112 - REMOVAL OF EXISTING PAVEMENT, CONCRETE CURB, SIDEWALK, DRIVEWAY AND/OR STRUCTURES
SECTION 02113 - ADJUSTING EXISTING LAMP POLES, INLETS, WATER SERVICES AND FIRE HYDRANTS TO GRADE
SEE NOTE 10 FOR MANHOLE AND WATER BOX ADJUSTMENTS

DIVISION 2 - SITEWORK

SECTION 02230 - STREET EXCAVATION, BACKFILL AND COMPACTION
SECTION 02232 - AGGREGATES FOR SURFACING AND ASPHALT PLANT MIXES A.C.
SECTION 02235 - CRUSHED BASE COURSE
SECTION 02250 - WATERING
SECTION 02501 - ASPHALT MATERIALS
SECTION 02502 - ASPHALT PRIME AND/OR TACK COAT
SECTION 02503 - HOT PLANT MIX ASPHALT CONCRETE BASE AND SURFACE COURSE - NEW AND OVERLAY APPLICATIONS
SECTION 02528 - CONCRETE CURB AND GUTTER
SECTION 02529 - CONCRETE SIDEWALKS, DRIVEWAYS, APPROACHES, AND MISCELANEOUS NEW CONCRETE CONSTRUCTION
SECTION 02581 - PAVEMENT MARKINGS AND MARKERS
SECTION 02910 - SEEDING

DIVISION 3 - CONCRETE (FOR CURB & GUTTER, VALLEY GUTTER, AND MISC. WATER/SEWER STRUCTURES ONLY)

SECTION 03210 - REINFORCING STEEL
SECTION 03300 - CAST-IN-PLACE CONCRETE

LEGEND

- EXISTING CONTOUR
- PROPOSED FINISH CONTOUR
- EXISTING ASPHALT PAVEMENT
- NEW ASPHALT PAVEMENT
- GRASSLINE DRAINAGE SWALE
- × 4015.0 SPOT ELEVATION
- PROPOSED CURB & GUTTER
- EXISTING CURB & GUTTER

LINEAR AND LEVEL DATA:

BENCH MARKS

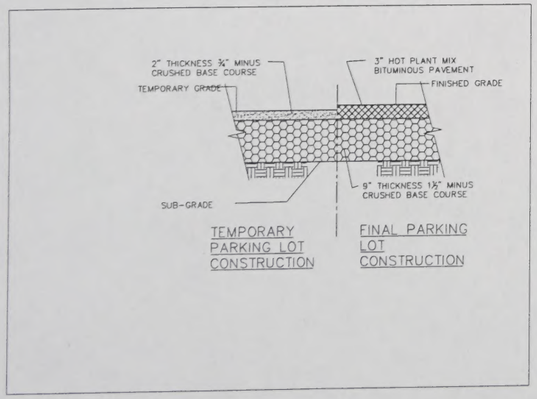
DESIGNATION C 468, PID # RX0013
DESIGNATION P 323, PID # RX0195

LEVEL DATUM SOURCE

NAVD88

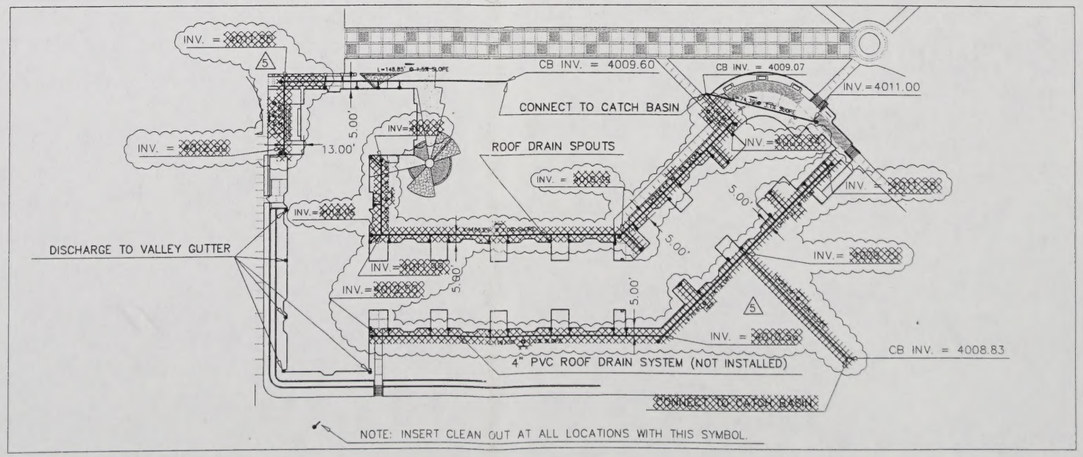
BEARING SOURCE

THE BASIS OF BEARING IS BASED ON MDT PROJECT NO. BR 8-2(47)43 SURVEY POINTS # 612A AND 42F



PAVEMENT SECTION

NTS



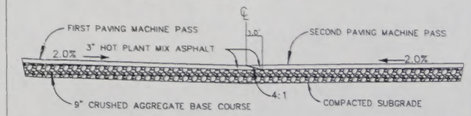
ROOF DRAIN SYSTEM

NTS

CONSTRUCT OPTION 1 HOT JOINT IN ASPHALT PAVEMENT AT CENTERLINE OF PARKING LOTS AS FOLLOWS:

1. OVERLAP CENTERLINE OF PARKING LOT 1.0' WITH FIRST PASS OF PAVING MACHINE.
2. HAND RAKE PAVEMENT EDGE AT CENTERLINE 4 HORIZONTAL TO 1 VERTICAL (4:1).
3. MAKE SECOND PASS WITH PAVING MACHINE AT CENTERLINE OF PARKING LOT PRIOR TO FINAL COMPACTION ROLLING AND FINISH ROLLING FIRST PASS.

THE CONTRACTOR MAY PROPOSE AN ALTERNATE METHOD FOR CONSTRUCTION OF THE ASPHALT JOINT IN THE CENTER OF THE PARKING LOTS FOR REVIEW AND APPROVAL BY THE ENGINEER. COLD JOINTS AND/OR VERTICAL BUTT JOINTS ARE NOT ALLOWED FOR ASPHALT PAVEMENT JOINTS AT THE CENTERLINE OF THE PARKING LOTS.



OPTION 1 ASPHALT PAVEMENT HOT JOINT DETAIL

NTS

NO.	REVISIONS	BY	DATE
1	INCREASED SOUTH PARKING LOT GRADES	JWC	8/15/2002
2	REFLECTS PERFORMA 9/17/02 SITE PLAN	JWS	9/24/2002
3	CHANGES DUE TO SUPPLEMENTARY CITY REVIEW COMMENTS #3 - OCT.22, 2002	JWS	11/08/2002
4	GRADING CHANGES TO REMOVE CB# 11	JWS	6/25/03

NO.	REVISIONS	BY	DATE
5	ADDED STORM DRAIN MAIN AND MANHOLES, PARKING LOTS SOUTH OF HENRY STREET UNFINISHED, ROOF DRAIN NOT INSTALLED & MISC. NOTES	JWC	1/5/04

NEW RESIDENCE HALL FOR
CARROLL COLLEGE
HELENA, MONTANA

Carroll MONTANA

MORRISON MAIERLE, INC.
An Employee Owned Company
119 East Kent Street
Post Office Box 1500
Spokane, Washington 99210-1500
Phone (509) 747-1964
Fax (509) 747-7962
CERTIFICATE OF AUTHORITY NO. 2007

ENGINEERS
SURVEYORS
LANDSCAPE ARCHITECTS
PLANNERS
FIRM NO. 1849

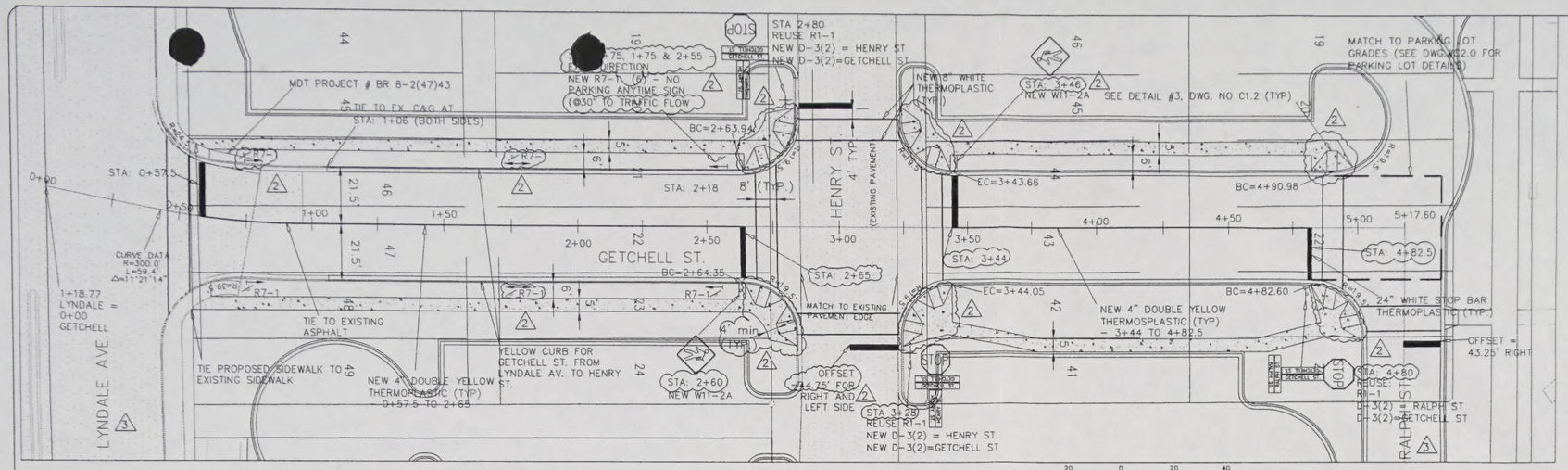
Performa
301 N. BROADWAY, SUITE 210 P.O. BOX 5158
DE PERE, WISCONSIN 54115
920-336-9373 FAX 920-336-9393 www.performainc.com

GRADING AND PAVING PLAN
AS-BUILT DRAWING

TITLE

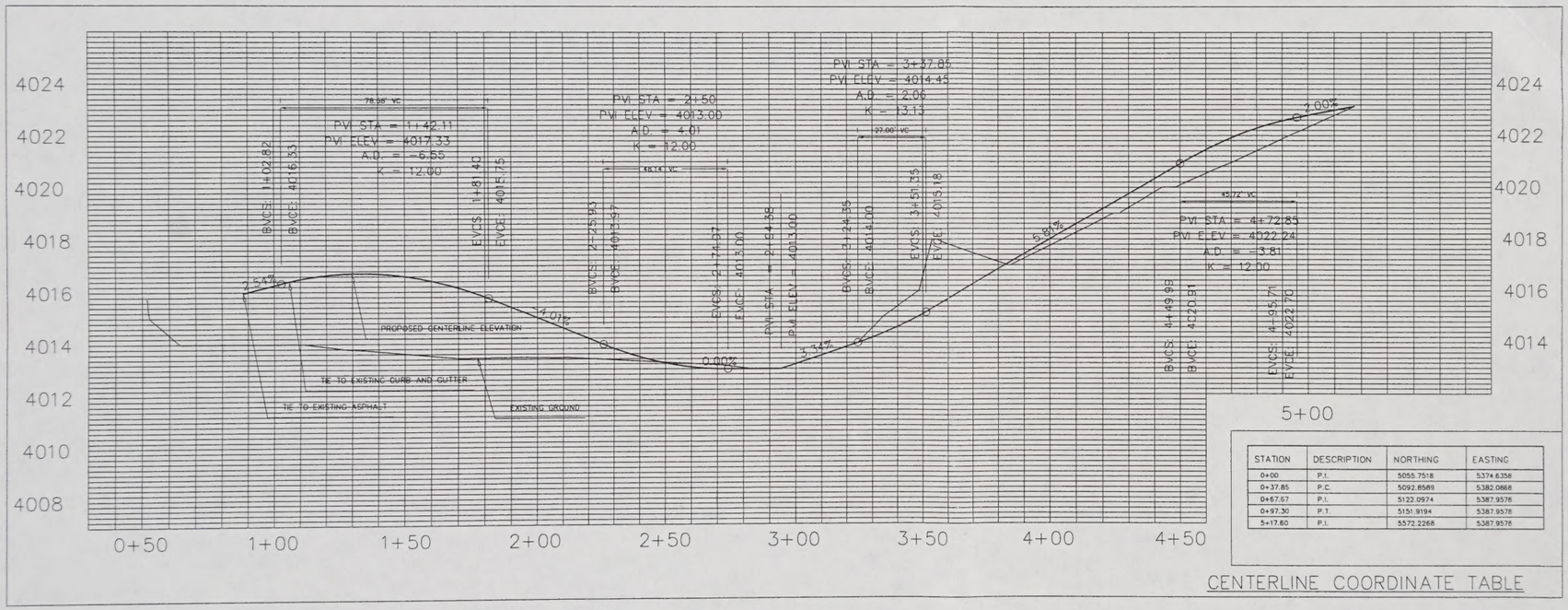
DRAWN JPS	CHK'D
DATE	
SCALE 1"=50'-0"	
CAD FILE -	
DRAWING No. C2.0	
PROJECT 3574	REV. 3

H:\HIGHWAYS\3574_Carroll College\CADD\AS-BUILTS\c2.0.dwg Jan/21/2005



GETCHELL STREET PLAN

SCALE: 1"=20'-0"



GETCHELL STREET PROFILE

SCALE: HORIZONTAL 1"=20", VERTICAL 1"=2'

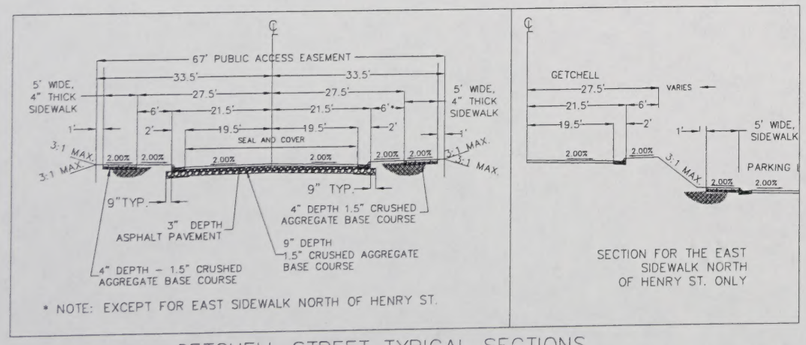
HORIZONTAL SCALE IN FEET

VERTICAL SCALE IN FEET

STATION	DESCRIPTION	NORTHING	EASTING
0+00	P.I.	5055.7518	5374.6358
0+37.85	P.C.	5092.8589	5382.0868
0+67.67	P.I.	5122.0974	5387.9578
0+97.30	P.T.	5151.9194	5387.9578
5+17.60	P.I.	5572.2268	5387.9578

CENTERLINE COORDINATE TABLE

AS-BUILT



* NOTE: EXCEPT FOR EAST SIDEWALK NORTH OF HENRY ST.

GETCHELL STREET TYPICAL SECTIONS

N.T.S.

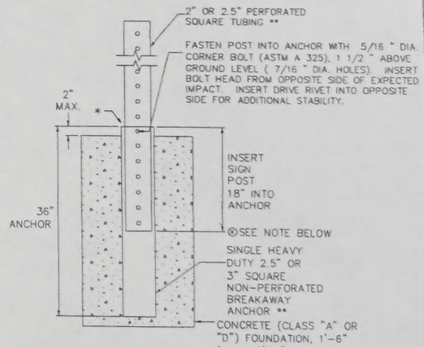
STATION	SIGN NO	PANEL SIZE (w x h)	BACK-GROUND LEGEND	REFL SHTG TYPE	FEET CLEARANCE	FEET SIGN SUPPORT SPACING	TYPE OF SUPPORT	FEET SUPPORT LENGTH (ESTIMATED)	FEET MOUNTING HEIGHT	FEET FOUNDATION DEPTH	SHEET ALUMINUM (SQ.FEET)	SIGNS BREAKAWAY	SIGNS REMOVE	SIGNS REUSE	REMARKS
1+15	R3-8A	30 X 36	III	III	2		2.5" SQ.TUBE	11	7	3	7.5	▲			
2+65	W11-2A	30 X 30	III	I	2		2.5" SQ.TUBE	11	7	3	6.25	▲			NEON YELLOW/GREEN BACKGROUND
2+80	D3	36 X 10	I	III	2		2.5" SQ.TUBE	11.7	7	3	2.5	▲			HENRY ST.
	D3	42 X 10	I	III							2.9				GETCHELL ST.
3+30	D3	36 X 10	I	III	2		2.5" SQ.TUBE	11.7	7	3	2.5	▲			HENRY ST.
	D3	42 X 10	I	III							2.9				GETCHELL ST.
3+45	W11-2A	30 X 30	III	I	2		2.5" SQ.TUBE	14.2	7	3	6.25	▲			NEON YELLOW/GREEN BACKGROUND
4+85					2		2.5" SQ.TUBE	11	7	3		▲		X	REUSE EXISTING SIGN WITH NEW POST INSTALLATION

SIGN AND POST INSTALLATION

N.T.S.

SINGLE SQUARE TUBE SIGN POST INSTALLATION

AS NOTED BY THE TRIANGLE SYMBOL ▲ ON THE LOCATION AND SPECIFICATION SHEETS.



* MINIMUM OF 2 SHIMS REQUIRED PER INSTALLATION TO TAKE UP TOLERANCE BETWEEN SUPPORT AND ANCHOR.

** SUPPORT AND CORRESPONDING ANCHOR					
SUPPORT			ANCHOR		
TUBE SIZE	WEIGHT	WALL THICKNESS	TUBE SIZE	WEIGHT	WALL THICKNESS
2"	2.42 LB./FT.	0.105" (12 GAGE)	2 1/2 "	18.36 LB. EA.	0.135"
2 1/2 "	3.80 LB./FT.	0.135" (10 GAGE)	3"	22.98 LB. EA.	0.188"

BREAKAWAY DETAIL

NOTES:

CURB RADII IS FOR BACK OF CURB UNLESS OTHERWISE INDICATED

ALL DIMENSIONS ARE TO THE BACK OF CURB

SIGNS TO BE INSTALLED WITH A TWO (2) FOOT MINIMUM HORIZONTAL CLEARANCE FROM THE FACE OF CURB AND A SEVEN (7) FOOT VERTICAL CLEARANCE MINIMUM. R7-1 NO-PARKING SIGNS TO HAVE INFORMATIONAL ARROWS AS PER THE DIRECTIONS INDICATED.

REUSE (FOR SIGNAGE) = REUSE EXISTING SIGNS WITH NEW POST INSTALLATION

EC = END CURB RETURN
BC = BEGIN CURB RETURN

CONSTRUCT APPROACH AS PER MPW STANDARD DWG. # 02529-5. MODIFY AS SHOWN.

ALL SIDEWALK RAMPS AT INTERSECTIONS MUST BE CONSTRUCTED ACCORDING TO DETAIL # 3, DRAWING NO. C1.2

RE-VEGETATE ALL AREAS DISTURBED BY CONSTRUCTION THAT ARE OUTSIDE OF THE AREAS DESIGNATED FOR ASPHALT PAVEMENT, CURB & GUTTER, CONCRETE SIDEWALKS AND LANDSCAPING

CONSTRUCT NEW CURB & GUTTER IN ACCORDANCE WITH MPW STANDARD DWG. # 02528-1.

PAVEMENT MARKINGS WILL BE INLAID THERMOPLASTIC, INSTALLED AFTER FINAL CHIP SEAL ACCORDING TO MDT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (1995) - SEE SECTION 620.03.5

SURVEY MONUMENTS & PROPERTY CORNERS

REFERENCE ALL SURVEY MONUMENTS, SECTION CORNERS, 1/4 CORNERS AND PROPERTY CORNERS PRIOR TO BEING DISTURBED BY CONSTRUCTION. REPLACE ANY MONUMENTS AND CORNERS THAT ARE DISTURBED DURING CONSTRUCTION.

TELEPHONE, NATURAL GAS AND ELECTRICAL POWER

CONTACT THE UTILITIES UNDERGROUND LOCATION CENTER AT LEAST TWO DAYS BEFORE BEGINNING EXCAVATION OR OTHER CONSTRUCTION OPERATIONS. (1-800-424-5555)

MONTANA PUBLIC WORKS (MPW) STANDARD SPECIFICATIONS

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SECTION 01580 - CONSTRUCTION TRAFFIC CONTROL

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SECTION 02113 - ADJUSTING EXISTING MANHOLES, LAMP POLES, INLETS, WATER VALVE BOXES, WATER SERVICES AND FIRE HYDRANTS TO GRADE
SECTION 02230 - STREET EXCAVATION, BACKFILL AND COMPACTION
SECTION 02232 - AGGREGATES FOR SURFACING AND ASPHALT PLANT MIXES A.C. SECTION 02235 - CRUSHED BASE COURSE
SECTION 02250 - WATERING SECTION 02501 - ASPHALT MATERIALS
SECTION 02502 - ASPHALT PRIME AND/OR TACK COAT
SECTION 02503 - HOT PLANT MIX ASPHALT CONCRETE BASE AND SURFACE COURSE - NEW AND OVERLAY APPLICATIONS
SECTION 02528 - CONCRETE CURB AND GUTTER
SECTION 02529 - CONCRETE SIDEWALKS, DRIVEWAYS, APPROACHES, AND MISCELANEOUS NEW CONCRETE CONSTRUCTION

DIVISION 3 - CONCRETE
SECTION 03210 - REINFORCING STEEL
SECTION 03300 - CAST-IN-PLACE CONCRETE

MONTANA REGISTERED PROFESSIONAL ENGINEER

LEGEND

- MATCH TO EXISTING ASPHALT PAVEMENT
- PROPOSED GETCHELL ST. CONCRETE SIDEWALK
- PROPOSED CURB & GUTTER
- EXISTING AND PROPOSED PARKING LOT CURB & GUTTER

NO.	REVISIONS	BY	DATE
1	INCORPORATED CITY COMMENTS	SWS	9/24/02
2	CHANGES DUE TO SUPPLEMENTARY CITY REVIEW COMMENTS #3 - OCT. 22, 2002	SWS	11/08/02
3	CHANGED MARKINGS AND SIGNAGE FOR GETCHELL APPROACH	SWS	03/31/03
4	GETCHELL PROFILE CHANGED TO MATCH MDT TIE IN	SWS	6/20/03
5	ADD STREET NAMES	JWG	1/7/04

NEW RESIDENCE HALL FOR CARROLL COLLEGE
HELENA, MONTANA

Carroll MONTANA

MORRISON MAIERLE, INC.
ENGINEERS SURVEYORS PLANNERS SCIENTISTS SINCE 1945
An Employee Owned Company
910 Helena Avenue Helena, MT 59601 Phone: (406) 442-5032 Fax: (406) 442-7582
CORTLANDT & HARRISON MARLE, INC. 2002

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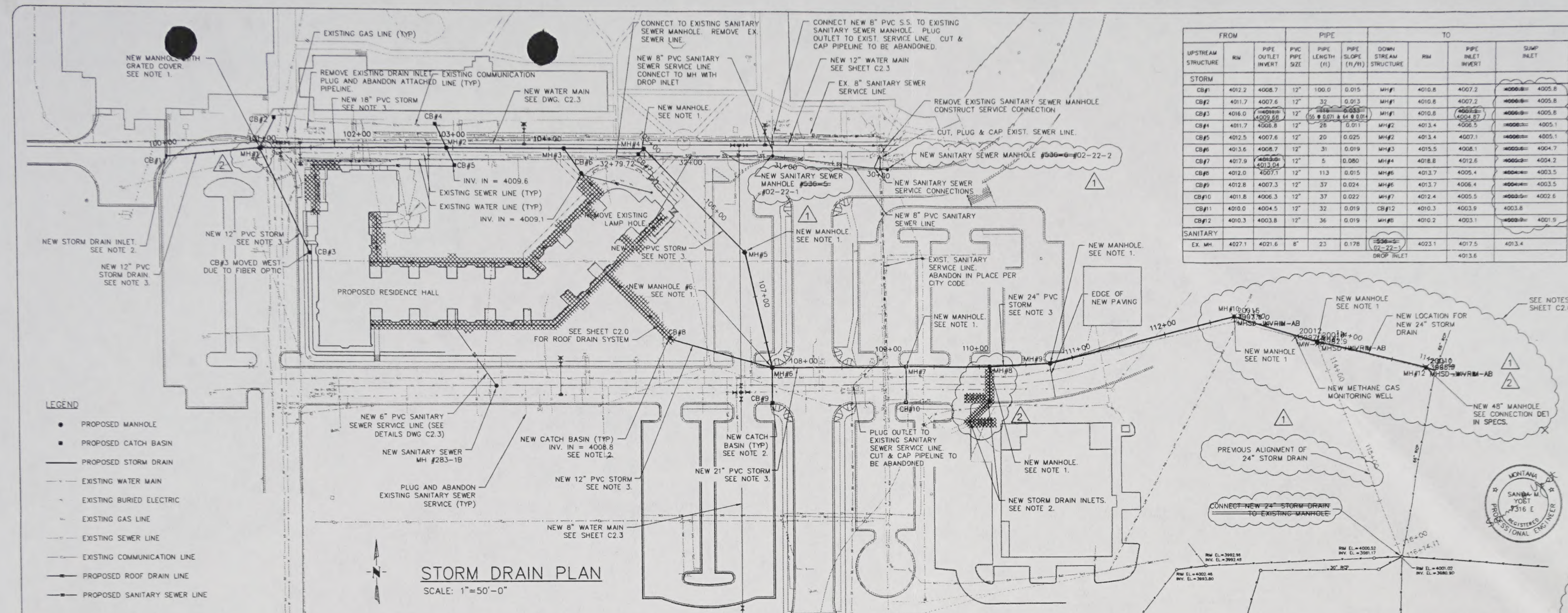
201 N. BROADWAY, SUITE 210 P.O. BOX 5156
GREEN BAY, WISCONSIN 54115
920-336-9979 FAX: 920-336-2989 www.performadc.com

GETCHELL PLAN AND PROFILE
AS-BUILT DRAWING

FILE
DRAWN SWS CHK'D
DATE
SCALE 1"=20'-0"
CAD FILE
DRAWING No. C2.1
PROJECT 3574 REV. 2

H:\HIGHWAYS\3574_Carroll College\ACAD\AS-BUILTS\C2.1.dwg Jan/21/2005



STORM DRAIN PLAN

SCALE: 1"=50'-0"

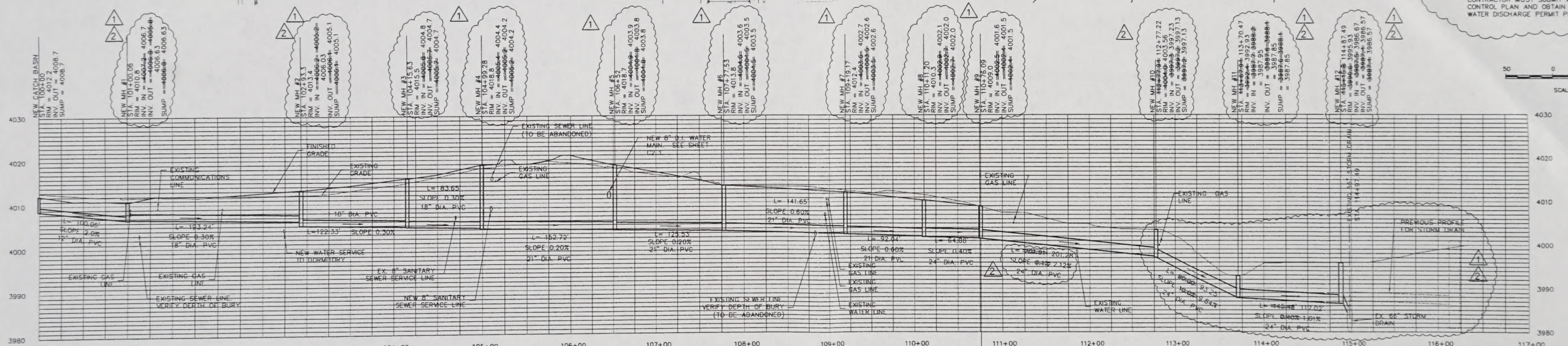
FROM			PIPE			TO			
UPSTREAM STRUCTURE	RIM	PIPE OUTLET INVERT	PVC PIPE SIZE	PIPE LENGTH (ft)	PIPE SLOPE (ft/ft)	DOWN STREAM STRUCTURE	RIM	PIPE INLET INVERT	SUMP INLET
STORM									
CB#1	4012.2	4008.7	12"	100.0	0.015	MH#1	4010.8	4007.2	4005.8
CB#2	4011.7	4007.6	12"	32	0.013	MH#1	4010.8	4007.2	4005.8
CB#3	4016.0	4009.68	12"	55 @ 0.071 & 64 @ 0.014		MH#1	4010.8	4004.87	4005.8
CB#4	4011.7	4008.8	12"	28	0.011	MH#2	4013.4	4006.5	4005.1
CB#5	4012.5	4007.6	12"	20	0.025	MH#2	4013.4	4007.1	4005.1
CB#6	4013.6	4008.7	12"	31	0.019	MH#3	4015.5	4008.1	4004.7
CB#7	4017.9	4013.04	12"	5	0.080	MH#4	4018.8	4012.6	4004.2
CB#8	4012.0	4007.1	12"	113	0.015	MH#6	4013.7	4005.4	4003.5
CB#9	4012.8	4007.3	12"	37	0.024	MH#6	4013.7	4006.4	4003.5
CB#10	4011.8	4006.3	12"	37	0.022	MH#7	4012.4	4005.5	4002.6
CB#11	4010.0	4004.5	12"	32	0.019	CB#12	4010.3	4003.9	4003.8
CB#12	4010.3	4003.8	12"	36	0.019	MH#8	4010.2	4003.1	4001.9
SANITARY									
EX. MH.	4027.1	4021.6	8"	23	0.178	~~536-5~~ 02-22-1	4023.1	4017.5	4013.4
						DROP INLET		4013.6	

STORM DRAIN AND SANITARY SEWER NOTES:

1. CONSTRUCT NEW STORM DRAIN MANHOLE IN ACCORDANCE WITH MPW STANDARD DRAWING NUMBER 02722-1 THRU 8.
2. CONSTRUCT NEW STORM DRAIN INLET IN ACCORDANCE WITH MPW STANDARD DRAWING NUMBER 02721-1 AND 02721-2 OR AS NOTED..
3. CONSTRUCT NEW STORM DRAIN PIPE IN ACCORDANCE WITH MPW STANDARD DRAWING NUMBER 02221-1, 02221-2, AND 02713-2. ALL NEW PIPE FROM NEW CATCH BASINS TO NEW MANHOLES TO BE 12" PVC.
4. SEE SHEET C2.0 FOR ROOF DRAIN SYSTEM.
5. PLUG AND ABANDON EXISTING SANITARY SEWER PIPELINE.
6. ABANDON EXISTING SEWER SERVICES THAT WILL NO LONGER BE IN USE, PER CITY OF HELENA CODE.
7. RE-SEED ALL AREAS DISTURBED BY CONSTRUCTION VEGETATION THAT ARE OUTSIDE OF THE AREAS DESIGNATED FOR ASPHALT PAVEMENT, CURB & GUTTER, CONCRETE SIDEWALKS AND LANDSCAPING.
8. TYPE A TRENCH BACKFILL WILL BE USED ON AREAS PROPOSED FOR PAVEMENT. TYPE B TRENCH BACKFILL WILL BE USED ONLY IN LANDSCAPED AREAS NOT DESIGNATED FOR FUTURE PAVING.
9. TYPE 1 PIPE BEDDING INCLUDES THE MATERIAL PLACED 4 INCHES BELOW THE BOTTOM OF THE PIPE TO 6 INCHES ABOVE THE PIPE.
10. ALL EXPLORATORY EXCAVATION REQUIRED FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHALL BE INCLUDED AS PART OF THE CONTRACT PRICE. NO EXTRA COMPENSATION WILL BE MADE FOR THIS WORK.
11. TRENCH DIMENSIONS – MAXIMUM TRENCH WIDTH SHALL BE 7 FEET. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY WITH CURRENT OSHA REGULATIONS. SUBSURFACE CONDITIONS SHOULD BE OBSERVED DURING EXCAVATION IN ORDER TO MAKE ADJUSTMENTS TO CONSTRUCTION PROCEDURES THAT WILL ENSURE WORKER SAFETY.
12. SUBMIT MDEQ STORM WATER PERMIT FOR CONSTRUCTION ACTIVITIES PERMIT AND EROSION CONTROL PLAN AT LEAST 30 DAYS PRIOR TO START OF CONSTRUCTION.
13. ASSURE LARGE DIAMETER PVC PIPE MEETS ASTM F679, T-1 WALL THICKNESS (SDR35).
14. CONTRACTOR SHALL FIELD VERIFY SIZE, MATERIAL AND LOCATION OF EXISTING STORM DRAIN MANHOLE IN CENTENNIAL PARK. CONTRACTOR SHALL FURNISH SPECIAL FITTINGS AND ALL OTHER MATERIAL REQUIRED FOR CONNECTING THE NEW STORM TO THE EXISTING MANHOLE.
15. CONTRACTOR TO FIELD VERIFY DEPTH OF ALL PERTINENT EXISTING UTILITIES.
16. AS IS A STANDARD REQUIREMENT IN THE CITY OF HELENA, ALL NEW STORM AND SEWER MAINS ARE TO BE INSPECTED WITH A TV CAMERA AFTER FINAL INSTALLATION, AND A TAPE PROVIDED TO THE CITY.
17. AS IS REQUIRED FOR ALL CONSTRUCTION PROJECTS IN MONTANA THAT DISTURB MORE THAN FIVE-ACRES, THE CONTRACTOR MUST SUBMIT AN APPROVABLE EROSION CONTROL PLAN AND OBTAIN A DEQ CONSTRUCTION STORM WATER DISCHARGE PERMIT PRIOR TO DISTURBANCE.

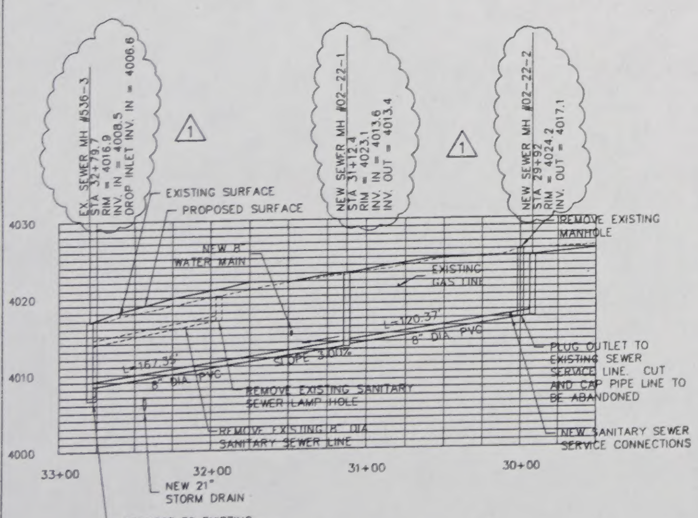
MONTANA SANDRA M. YOST 9316 E REGISTERED PROFESSIONAL ENGINEER

50 0 50 100
SCALE IN FEET



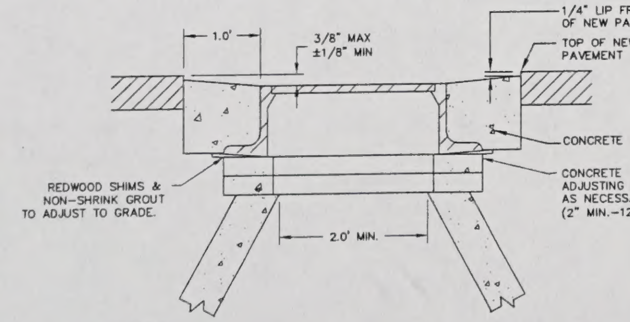
STORM DRAIN PROFILE

VERTICAL SCALE: 1"=10'-0"



SANITARY SEWER PROFILE

VERTICAL SCALE: 1"=10'-0"



NOTES:

1. ADJUST MANHOLES UPWARD WITH ADJUSTING RINGS UNDER FRAME.
2. ADJUST MANHOLE DOWNWARD BY REMOVING CONE AND BARREL SECTIONS AS NECESSARY AND REPLACING WITH SECTIONS OF LENGTH REQUIRED TO MATCH GRADE.
3. SLOPE MANHOLE FRAME AS REQUIRED TO MATCH SLOPE OF STREET.
4. FINAL MANHOLE ADJUSTMENT SHALL BE MADE AFTER PAVING.

MANHOLE COVER ADJUSTMENT

NOT TO SCALE

SURVEY MONUMENTS & PROPERTY CORNERS

REFERENCE ALL SURVEY MONUMENTS, SECTION CORNERS, 1/4 CORNERS AND PROPERTY CORNERS PRIOR TO BEING DISTURBED BY CONSTRUCTION. REPLACE ANY MONUMENTS AND CORNERS THAT ARE DISTURBED DURING CONSTRUCTION.

TELEPHONE, NATURAL GAS AND ELECTRICAL POWER

CONTACT THE UTILITIES UNDERGROUND LOCATION CENTER AT LEAST TWO DAYS BEFORE BEGINNING EXCAVATION OR OTHER CONSTRUCTION OPERATIONS. (1-800-424-5555)

MONTANA PUBLIC WORKS (MPW) STANDARD SPECIFICATIONS

ALL ITEMS OF WORK UNDER THIS CONTRACT WILL BE COMPLETED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE MPW STANDARD SPECIFICATIONS:

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 01580 – CONSTRUCTION TRAFFIC CONTROL
DIVISION 2 – SITEWORK
SECTION 02112 – REMOVAL OF EXISTING PAVEMENT, CONCRETE CURB, SIDEWALK, DRIVEWAY AND/OR STRUCTURES
SECTION 02221 – TRENCH EXCAVATION AND BACKFILL FOR PIPELINES AND APPURTENANT STRUCTURES
SECTION 02250 – WATERING
SECTION 02528 – CONCRETE CURB AND GUTTER
SECTION 02529 – CONCRETE SIDEWALKS, DRIVEWAYS, APPROACHES, AND MISCELLANEOUS NEW CONCRETE CONSTRUCTION
SECTION 02610B – SANITARY SEWER MAIN MATERIALS
SECTION 02610C – STORM DRAIN MATERIALS
SECTION 02721 – STORM DRAIN AND CULVERTS
SECTION 02722 – SANITARY SEWER MAIN
SECTION 02724 – SANITARY SEWER AND STORM DRAIN SERVICES
SECTION 02910 – SEEDING
DIVISION 3 – CONCRETE (FOR CURB & GUTTER, VALLEY GUTTER, AND MISC. WATER/SEWER STRUCTURES ONLY)
SECTION 03210 – REINFORCING STEEL
SECTION 03300 – CAST-IN-PLACE CONCRETE

MANHOLE #	TYPE	FRAME/GRATE *	INLET STRUCTURE	RIM ELEV.
1	COVER GRATE	MCI-301/MCI 301-D1	48" DIA. MH	4010.8
2	SOLID COVER – STORM	MCI-301/MCI 301-A	48" DIA. MH	4013.4
3	SOLID COVER – STORM	MCI-301/MCI 301-A	48" DIA. MH	4015.5
4	SOLID COVER – STORM	MCI-301/MCI 301-A	48" DIA. MH	4018.8
5	COVER GRATE	MCI-301/MCI 301-D1	48" DIA. MH	4018.7
6	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4013.8
7	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4012.4
8	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4010.3
9	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4009.0
10	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4004.0
11	COVER GRATE	MCI-301/MCI 301-D1	48" DIA. MH	3992.4
12	COVER GRATE	MCI-301/MCI 301-D1	48" DIA. MH	3996.0
CATCH BASIN #				
1	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4012.2
2	COVER GRATE	MCI-301/MCI 301-D1	MPW STD. 30" DIA RISER	4011.7
3	COVER GRATE	MCI-301/MCI 301-D1	MPW STD. 30" DIA RISER	4016.0
4	COVER GRATE	MCI-301/MCI 301-D1	MPW STD. 30" DIA RISER	4011.7
5	COVER GRATE	MCI-301/MCI 301-D1	MPW STD. 30" DIA RISER	4012.5
6	COVER GRATE	MCI-301/MCI 301-D1	MPW STD. 30" DIA RISER	4013.6
7	COVER GRATE	MCI-301/MCI 301-D1	MPW STD. 30" DIA RISER	4017.9
8	COVER GRATE	MCI-301/MCI 301-D1	MPW STD. 30" DIA RISER	4012.0
9	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4012.8
10	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4011.8
11	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4010.0
12	COVER GRATE & CURB BOX	IFCO 515-7	48" DIA. MH	4010.3
SEWER M.H. #				
283-1B	SOLID COVER – SEWER	MCI-301/MCI 301-A	48" DIA. MH	4016.3
~~536-5~~ 02-22-1	SOLID COVER – SEWER	MCI-301/MCI 301-A	48" DIA. MH	4023.1
~~536-6~~ 02-22-2	SOLID COVER – SEWER	MCI-301/MCI 301-A	48" DIA. MH	4024.2

* OR APPROVED EQUAL ** CONTRACTOR TO VERIFY GROUND SURFACE/RIM ELEVATION

AS-BUILT

NO.	REVISIONS	BY	DATE
1	MANHOLE INVERTS ADJUSTED AND STORM DRAIN RE-ALIGNMENT	SMY	11/2002
2	ADJUSTED MANHOLE #1 & #2 INVERTS, RE-ALIGN MANHOLES #1, #10, #11, & #12, AND INDICATE CB# 11, & 12 NOT INSTALLED	SMY	12/2003

NEW RESIDENCE HALL FOR CARROLL COLLEGE HELENA, MONTANA

Carroll MONTANA

MORRISON MAIERLE, INC. An Employee-Owned Company ENGINEERS SCIENTISTS SURVEYORS PLANNERS SINCE 1945
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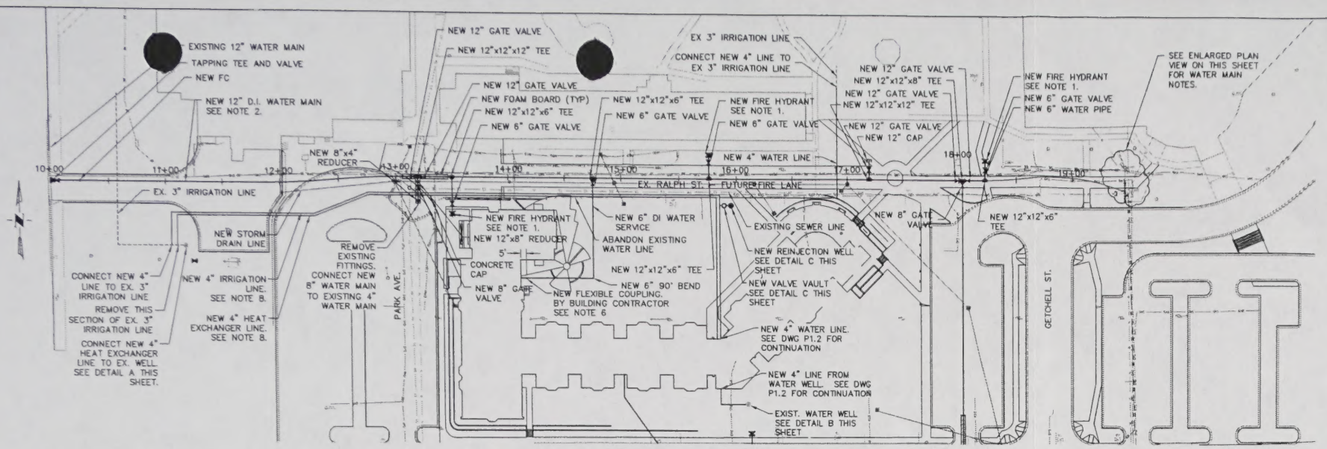
TITLE: STORM DRAIN PLAN AND PROFILE AND SANITARY SEWER AS-BUILT DRAWING

DRAWN	CHK'D
JPS	SMY
DATE	9/24/02
SCALE	1"=50'-0"
CAD FILE	C2.2
DRAWING No.	C2.2
PROJECT 3574	REV. 1

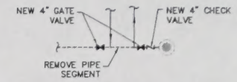


12" WATER MAIN PLAN AND WATER SERVICE CONNECTION

SCALE: 1"=50'-0"

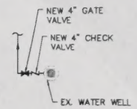
WATER MAIN NOTES:

1. CONSTRUCT NEW FIRE HYDRANT IN ACCORDANCE WITH MPW STANDARD DRAWING NUMBER 02718-2.
2. CONSTRUCT NEW WATER MAIN IN ACCORDANCE WITH MPW STANDARD DRAWING NUMBER. 02713-2.
3. CONTRACTOR TO VERIFY SIZE, MATERIAL, AND LOCATION OF EXISTING WATER SERVICE. PRIOR TO INSTALLATION, METHOD OF CONNECTING EXISTING WATER MAIN TO NEW 12" WATER MAIN SHALL BE APPROVED BY THE ENGINEER.
4. CONSTRUCT NEW SANITARY SEWER MANHOLE IN ACCORDANCE WITH MPW STANDARD DRAWING NUMBER 02213-1 AND 02722-1 THRU 8.
5. CONSTRUCT NEW SANITARY SEWER PIPE IN ACCORDANCE WITH MPW STANDARD DRAWING NUMBER 02221-1, 02221-2, 02713-1 AND 02713-2.
6. UTILITY CONTRACTOR SHALL CONSTRUCT SERVICE LINES TO WITHIN 5 FEET OF BUILDING LINE, PLUG, AND TEST LINE. BUILDING CONTRACTOR TO REMOVE PLUG AND CONNECT SERVICE LINES TO BUILDING PLUMBING. BUILDING CONTRACTOR SHALL EMPLOY SERVICES OF LICENSED PLUMBER TO MAKE CONNECTION TO BUILDING PLUMBING. UTILITY CONTRACTOR TO COORDINATE WITH BUILDING CONTRACTOR.
7. A MINIMUM OF 18" SHALL BE MAINTAINED BETWEEN THE NEW 12" STORM DRAIN PIPE AND THE NEW 12" WATER MAIN.
8. NEW 4" HEAT EXCHANGER LINE AND NEW 4" IRRIGATION LINE ARE NON-POTABLE. CONSTRUCT IN ACCORDANCE WITH MPW STANDARD DRAWING NO. 02713-2.



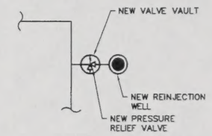
DETAIL A

NOT TO SCALE



DETAIL B

NOT TO SCALE



DETAIL C

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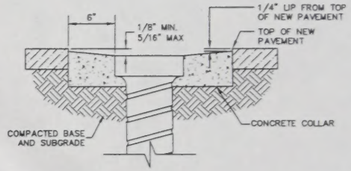
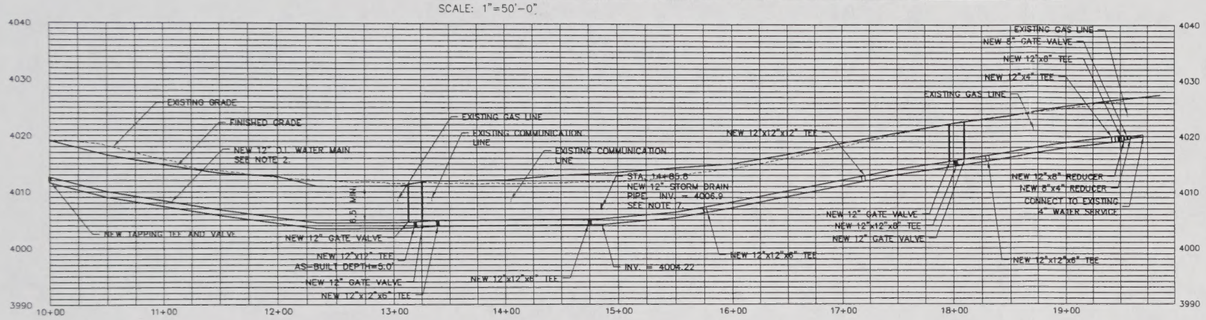


NOTES:

1. ADJUST WATER VALVES UPWARD OR DOWNWARD AS REQUIRED.
2. FINAL ADJUSTMENT SHALL BE MADE AFTER PAVING.

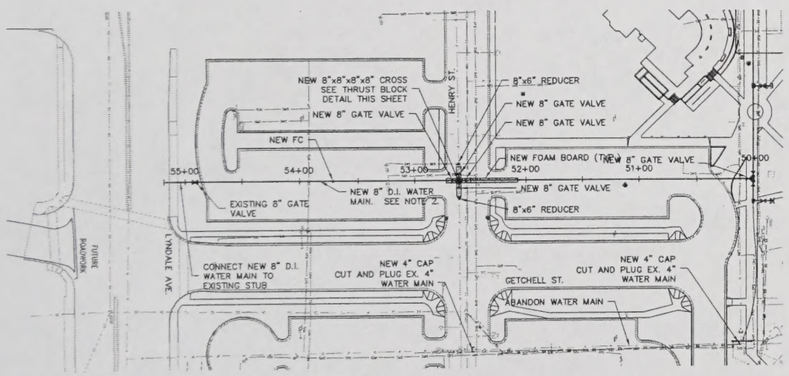
WATER VALVE BOX ADJUSTMENT

NOT TO SCALE



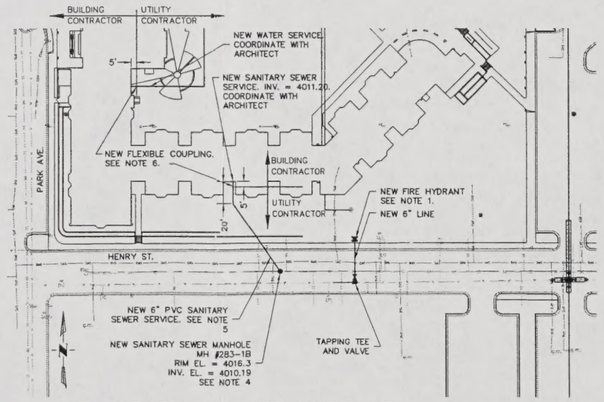
12" WATER MAIN PROFILE

VERTICALE SCALE: 1"=10'-0"



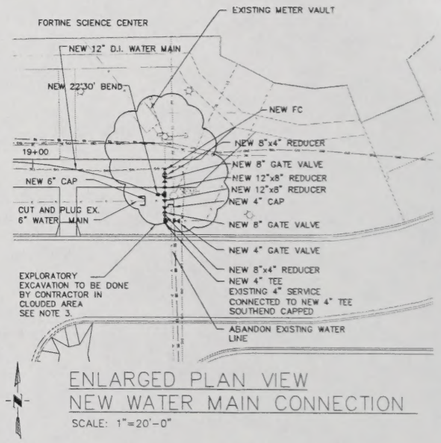
8" WATER MAIN PLAN

SCALE: 1"=50'-0"



NEW HENRY ST. FIRE HYDRANT AND SANITARY SEWER SERVICE CONNECTION

SCALE: 1"=50'-0"

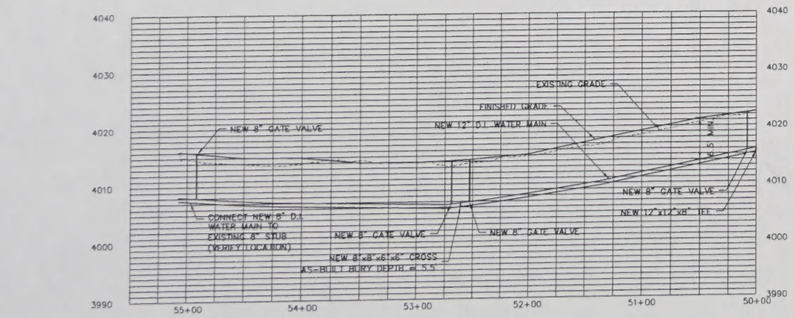


ENLARGED PLAN VIEW NEW WATER MAIN CONNECTION

SCALE: 1"=20'-0"

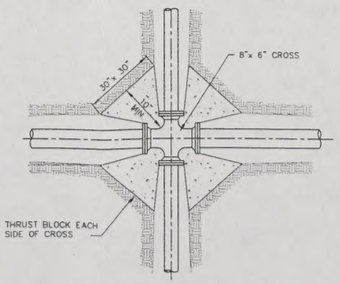
LEGEND

- EXISTING VALVE
- PROPOSED GATE VALVE
- PROPOSED CHECK VALVE
- PROPOSED PRESSURE RELIEF VALVE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED TEE
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- EXISTING BURIED ELECTRIC
- EXISTING GAS LINE
- EXISTING SEWER LINE
- EXISTING COMMUNICATION LINE



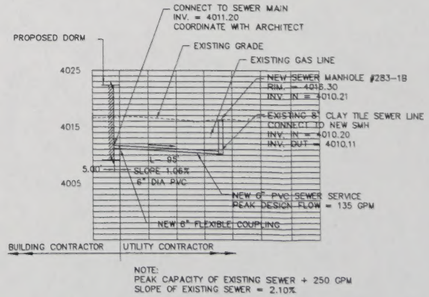
8" WATER MAIN PROFILE

VERTICALE SCALE: 1"=10'-0"



TYPICAL THRUST BLOCK AT CROSS

NOT TO SCALE



NOTE:
PEAK CAPACITY OF EXISTING SEWER + 250 GPM
SLOPE OF EXISTING SEWER = 2.10%

NEW 6" PVC SANITARY SEWER PROFILE

NOT TO SCALE

AS-BUILT

50 0 50 100
SCALE IN FEET

NO.	REVISIONS	BY	DATE
1	CITY OF HELENA SUPPLEMENTAL COMMENTS #2		9-20-02
2	STORM DRAIN CHANGES		9-23-02
3	AS-BUILT CONSTRUTION		12-6-02

NEW RESIDENCE HALL FOR CARROLL COLLEGE HELENA, MONTANA

Carroll MONTANA

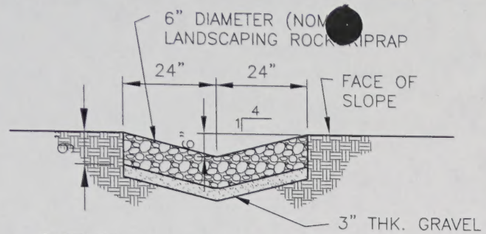
MORRISON MAIERLE, INC. ENGINEERS SURVEYORS PLANNERS SINCE 1906 An Employee Owned Company Helena & Lewis & Clark Counties 910 Helena Avenue Helena, Montana 59601 (406) 442-5032 Corvallis & Bozeman Metro, MT

Performa 301 N. BROADWAY, SUITE 210 P.O. BOX 5158 BOZEMAN, MONTANA 59771 PH: 406-586-8988 FAX: 406-586-8989 www.performainc.com

WATER LINE PLAN AND PROFILE
WATER SERVICE CONNECTION
SANITARY SEWER SERVICE CONNECTION
AS-BUILT DRAWING

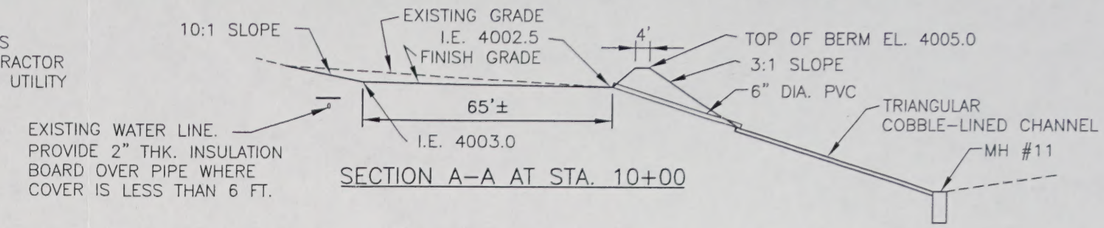
DRAWN	JPS
CHK'D	TRB
DATE	9-06-02
SCALE	1"=50'-0"
CAD FILE	–
DRAWING No.	C2.3
PROJECT	3574
REV.	–

AS-BUILT

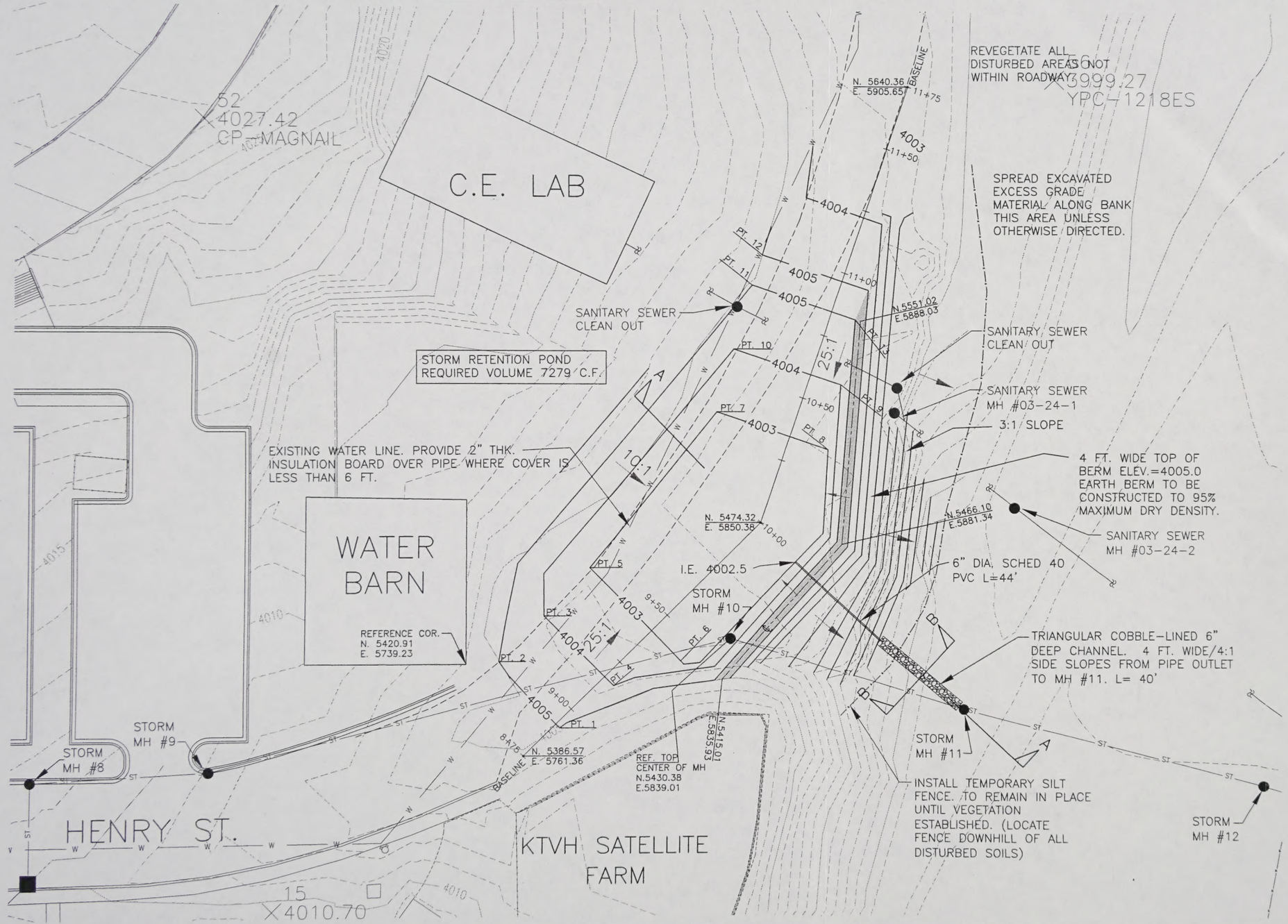


OUTLET CHANNEL – SECTION B–B

NOTE:
LOCATION OF UTILITIES APPROXIMATE. CONTRACTOR TO FIELD VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION.



SECTION A–A AT STA. 10+00



GRADING COORDINATES		
PT. NO.	NORTHING	EASTING
1	5397.05	5774.92
2	5421.92	5751.71
3	5439.02	5768.64
4	5412.80	5794.70
5	5457.23	5785.52
6	5422.11	5820.18
7	5516.46	5833.24
8	5502.23	5875.91
9	5526.88	5880.63
10	5540.29	5839.68
11	5564.61	5846.74
12	5576.11	5850.60
13	5551.58	5886.06

POND VOLUME		
CONTOUR	AREA (SQ. FT.)	VOL. (CU. FT.)
4003	4992	1248
4004	8772	8130
4005	13,053	19,043

EARTHWORK QUANTITY ESTIMATES

EXCAVATION	~300 CY
EMBANKMENT	~200 CY
ROCK RIPRAP	~4.5 CY
AGGREGATE 1 1/2" MINUS (TYPE 1 BEDDING)	~2.0 CY
PIPE 6" DIA SCH 40 PVC = 44 FT (QUANTITIES FOR BID PURPOSES ONLY)	

CONSTRUCTION SPECIFICATIONS

ALL ITEMS OF WORK UNDER THIS CONTRACT WILL BE COMPLETED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE MPW STANDARD SPECIFICATIONS:

DIVISION 1 – GENERAL REQUIREMENTS
SECTION 01500 – CONSTRUCTION AND TEMPORARY FACILITIES.

DIVISION 2 – SITE WORK
SECTION 02230 – STREET EXCAVATION, BACKFILL AND COMPACTION
SECTION 02720 – STORM DRAIN SYSTEMS
SECTION 02910 – SEEDING

N

20 0 20 40
SCALE IN FEET

VERIFY SCALE! THESE PRINTS MAY BE REDUCED OR ENLARGED. MEASURES ONE INCH ON ORIGINAL DRAWING. MODIFY SCALE ACCORDINGLY!

MONTANA SANDRA M. YOST #316 E REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MORRISON MAIERLE, INC.
ENGINEERS SCIENTISTS SURVEYORS PLANNERS SINCE 1945
An Employee-Owned Company
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DRAWN BY: JMH
CHK'D. BY: SMY
APPR. BY:
DATE: 3/2003
Q.A. REVIEW
BY:
DATE:

CARROLL COLLEGE STORM WATER DETENTION POND
HELENA MONTANA

POND LAYOUT & GRADING PLAN

PROJECT NO. 0257
SHEET NUMBER 1
DRAWING NUMBER C-1

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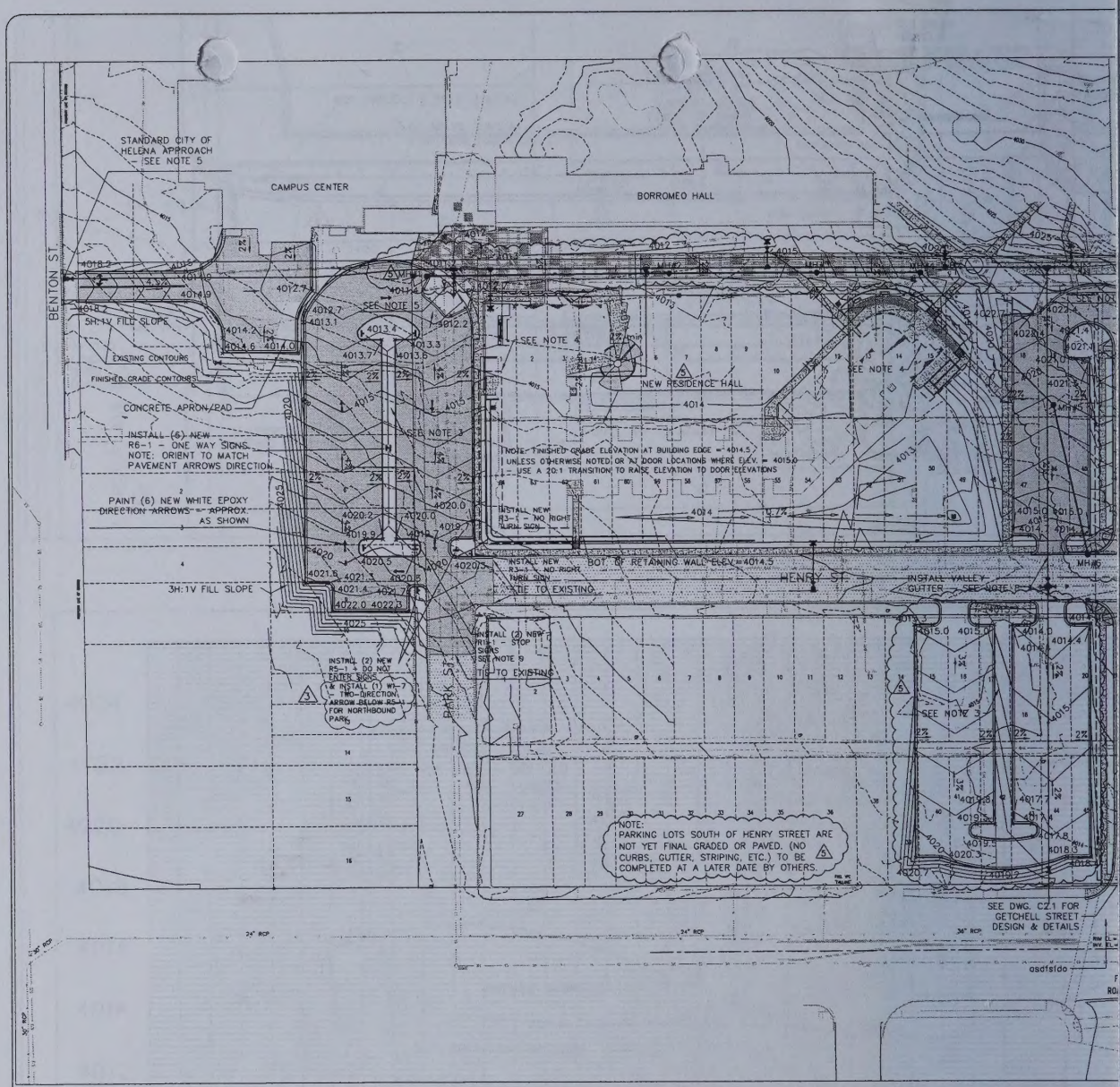
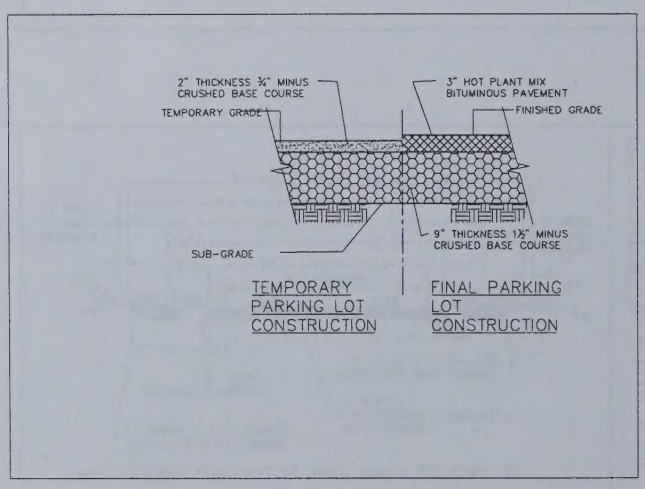


GRADING & PAVING PLAN

SCALE: 1"=50'-0"

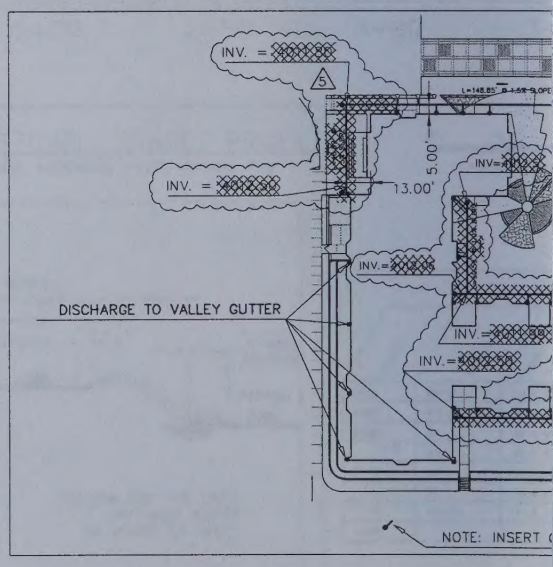
50 0 50 100

SCALE IN FEET



PAVEMENT SECTION

NTS



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JAN 28 2005
Dept. of Enviro. Quality
Waste & Underground
Tank Management Bureau

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